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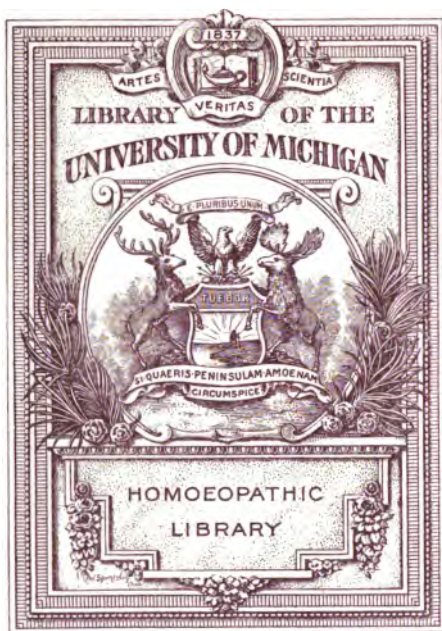
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DISEASES OF
THE LIVER, PANCREAS
AND DUCTLESS
GLANDS

BY

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PREFACE.

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In the preparation of this work the aim of the author has been to present to the profession a concise discussion of the diseases of these important organs in such a manner that the busy practitioner and the student of medicine have not to read the large and ponderous works on these subjects to gain the desired information. In the subject of treatment, however, no attempt has been made to abbreviate, but the subject has been considered in all its phases as it would be in a larger work.

The essential of each topic discussed has been given in a manner that is readily accessible. In the treatment of those subjects that require differential diagnosis, tables have been prepared to render the essential points apparent at a glance. While no reference has been made to authors through the work owing to the writer's desire to economize space, yet he desires to express his indebtedness to the numerous writers upon these subjects as they have each been freely consulted in the preparation of this work. The author is indebted to Dr. George M. McBean for revision of the manuscript and of the proof.

There is no subject in the realm of physiological chemistry that requires more definite investigation than does the internal secretion of some of the organs discussed in this manual, and this work is presented in the hope that it may stimulate investigation in this direction.

A. L. BLACKWOOD, M. D.

31 Washington St., Chicago.

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DISEASES OF THE LIVER.

POSITION AND RELATION TO SURROUNDING ORGANS.

The liver occupies a position in the lower portion of the thorax below the diaphragm. It is wedge-shaped. The major portion of the organ is to the right of the median line.

It has three surfaces, superior, inferior and posterior. Its superior surface is convex, smooth and fits evenly to the under surface of the diaphragm. The latter separates it from the right lung, the heart, and a small portion of the left lung. The right and left lobes are separated by the suspensory ligament.

The inferior surface is irregular and unevenly concave. There are five lobes, namely, the right, left, quadrate, caudate, and spigelian.

The hepatic flexure of the colon, a portion of the duodenum and the upper portion of the right kidney are below the right lobe, while below the left lobe are the fundus of the stomach, the gastro-hepatic omentum and the smaller curvature of the stomach.

The posterior surface is broken by two vertical grooves; one of which contains the shrunken ductus venosus while the other contains the inferior vena cava.

In health its weight is about three pounds.

FUNCTIONS OF THE LIVER.

The liver not only has an important part in metabolism but produces a specific secretion known as the bile.

Nitrogen Metabolism.—In the disintegration of albumin within the system there are developed certain amido-acids which in the further course of their decomposition produce ammonia. These amido-acids are known as leucin, tyrosin, glycocoll, asparaginic acid. The main product of the albumin decomposition that flows into the liver is lactic acid ammonia. This is transformed into ammonium carbamate and this by the action of the liver cells into urea.

Carbohydrate Metabolism.—There is circulating in the blood about 2 per cent. of sugar, any excess of this amount is excreted as a foreign substance. The arrangement by which this percentage of sugar is maintained in the blood is a function of the liver.

The grape sugar as absorbed by the digestive tract is conveyed by the portal system of veins to the liver and is there changed into glycogen and is stored in the liver and in the muscles. From this reserve there is drawn as needed to maintain the required amount in the blood. The glycogen is changed back into sugar by the action of a diastatic ferment which is contained in the blood. The liver cells are not only the sources for the production of the glycogen but also regulate the amount of sugar entering the blood. Glycogen is also formed from the albuminous bodies and the fats to an extent.

Metabolism of Fats.—The liver also acts as a store-

house for the fats. They reached the liver by means of the chyle vessels, the thoracic duct and the blood vessels.

Detoxicating Function.—The liver exercises a protective function by either storing or excreting poisons, as iron, copper, arsenic, mercury, and antimony, that may be circulating in the blood.

Secretion of Bile.—Bile is partly a specific secretion of the liver and partly an excretion that carries off certain waste products of metabolism; among the former are cholesterin, leucin, among the latter are bile pigments and bile salts. It is of great importance in the emulsifying and the absorption of fats in the intestinal tract. When the neutral fats have been split by steapsin into glycerin and free fatty acid, and the latter in turn has been transformed into soaps by the alkalies of the intestinal juices and these soluble soap molecules enter among the unchanged molecules of the neutral fats and cause emulsification. Then absorption of the fats into the lymph channels takes place through the action of the bile.

By the moistening of the intestinal mucous membrane it facilitates the absorption of fats. When added to the pancreatic juices it accelerates the action of the ferments, especially amylopsin.

It has an antiseptic power and prevents the decomposition of food in the intestinal tract. Through its action upon the muscular walls of the intestines and the villi it acts as a natural purgative and assists in promoting the secretion of the intestinal glands and stimulates the intestines in the propulsion of their contents. It precipitates the gastric ferments, pep-

tones and pepsin as the contents of the stomach pass into the duodenum.

THE CLINICAL EXAMINATION OF THE PATIENT AND SEMIOLOGY.

In order to make an examination of the hepatic region, all clothing should be removed from this portion of the body and the abdominal muscles should be put in a state of relaxation. To accomplish the latter the dorsal decubitus should be assumed. The head should be pressed firmly against a cushion. The thighs should be flexed upon the abdomen. In some cases the patient should be asked to respire deeply while in other cases the respiration should be but moderately deep. The mouth should be kept open.

The physician should sit preferably upon the edge of the bed or the object upon which the patient is reclining during the time of the examination. The points to be observed in the examination are the position, size, shape, consistence and the character of the exposed surface of the liver and whether it is smooth or nodular.

Inspection.—This does not afford as much information as in some other disease. But icterus should be at once recognized. By careful inspection in a good light it may be possible to observe the moving up and down of the lower edge of an enlarged liver during respiration.

Hepatic pulsation dependent upon tricuspid insufficiency is frequently visible, also during aortic disease. Enlargement of the organ from any cause produces an apparent enlargement of the region. A

number of enlarged veins radiating from the umbilicus constitutes the caput medusæ. These are indicative of portal obstruction; (as present in hepatic cirrhosis), a general enlargement of the superficial abdominal veins appears as a result of much the same causes.

The hepatic venous pulse is observed in cases of insufficiency of the tricuspid valve. It corresponds to a presystolic-systolic dilatation of the hepatic vascular system.

Palpation.—A normal liver under a normal abdominal wall cannot be palpated. If the abdominal walls are relaxed or if the resistance of the organ is increased it is then palpable. The former is observed following pregnancy and such states as lead to an increase of the abdominal contents and emaciation.

In palpation of the liver the patient should be in the horizontal position and the abdominal muscles as thoroughly relaxed as possible. The physician should be to the right of the patient and facing the bed. The right hand (warmed) is laid flat upon the abdominal wall below the costal arch. The fingers should be external to the right rectus otherwise the superior transverse lines will be mistaken for the liver. The right kidney and liver may be pressed forward by placing the four fingers of the left hand in the lumbar region while the thumb is placed in front below the costal cartilage. As the patient inspires and forces the organ downward it is now possible to bring it forward and hold it while palpation is made with the right hand. This method may be performed while the patient is in the erect posture or sitting. The

liver is moved downward by the diaphragm during each inspiration.

Fatty infiltration, passive congestion and the pressure from tight lacing are some of the causes which lead to an increase in the consistency of the organ.

Enlargement due to carcinomatous nodules and gummata are palpable as well as those nodular irregularities that are dependent upon hepatic cirrhosis.

The gall bladder cannot be palpated in the normal condition. But when its walls become thickened and distended it is often palpable. It is situated within the mammillary line about where the margin of the liver crosses the costal arch.

Percussion.—The patient should be in the recumbent position to percuss the liver over the front and side, while he should be standing or sitting to percuss posteriorly.

The upper portion of the right lobe of the liver is overlapped by the right lung. Percussion over this area gives a note of impaired pulmonary resonance, or modified or covered hepatic dulness, while percussion over the area in which the surface of the liver is in contact with the chest wall is known as absolute or superficial liver dulness.

Percussing from above downward in a normal subject, the area of modified dulness is met in the fourth intercostal space in the mammillary line, in the seventh space in the mid-axillary line and in the ninth space in the scapular line.

The upper limit of absolute liver dulness, which corresponds to the lower border of the right lung, is on the mammillary line at the sixth rib, in the mid-

axillary line is at the eighth rib, and in the scapular line is at the tenth rib.

It is difficult to distinguish the hepatic and cardiac dulness in the midsternal line, but by auscultatory percussion this is at times possible. A line extending from the apex of the heart to the junction of dulness caused by the right side of the heart and the upper limit of hepatic dulness, is recognized as approximately correct.

Auscultation.—Friction sounds are heard at times over the liver which is probably due to a fibrinous exudation from the peritoneum.

Auscultatory percussion of the liver is of service when it is imperative that the outline of the liver be obtained accurately, or when it is desired to ascertain the origin of a tumor, in close proximity to the liver.

To ascertain the limit of the liver by this method, the stethoscope should be placed over the center of the hepatic area and percussion made toward it from above and below. The sounds should be judged by the regular rules.

This method is also employed to ascertain if a growth is connected with the liver or is distinct from it; if the stethoscope is placed over a portion of the liver approximating to the growth. If the growth is an outgrowth of the liver the percussion notes resemble each other in intensity and quality, while if it is distinct the sounds are not similar. If there are adhesions that bind the growth closely to the liver it may be difficult or impossible to make any distinction.

The liver is enlarged in passive congestion which is usually dependent upon valvular cardiac disease, in

amyloid disease, fatty infiltration, leukemia, gum-mata, abscess, hydatids, hypertrophic cirrhosis, cancer and in some cases of Weil's Disease.

There is a gradual diminution in the size of the liver in cirrhosis, while in acute yellow atrophy it diminishes in size from day to day.

It should be remembered that an apparent diminution may be dependent upon emphysema of the right lung, or as the result of a right pneumothorax. In some cases it is the lower margin of the liver that is encroached upon by a distension of the colon or small intestines, or from gas in the peritoneal cavity.

Pain is not a constant symptom of disease of the liver. The parenchyma of the liver is non-sensitive, and as a result such diseases as fatty infiltration, amyloid degeneration, echinococcus, and certain forms of cirrhosis run their course without pain. The liver may assume undue proportions, and cause much discomfort by displacing the viscera and yet pain may not be present. When pain is present, the serous covering of the organ or the bile passages are involved. Inflammation is the great cause of pain (the serous covering), while rapid distension of the capsule is a less frequent cause. Carcinoma, syphilitic hepatitis, abscess, phosphorus liver, and hyperemia of the liver, which has developed rapidly, are the most common. The pain may be localized or diffused. Pressure, movements, and succussion aggravate it.

Pain that arises from the serous covering is relieved while the patient lies upon the left side, and bends the body towards that side, while if the liver is much involved, a position on the right side brings more relief.

Pain at the inferior angle of the right shoulder blade is frequently found in connection with disease of the liver, as hyperemia, abscesses, echinococcus, carcinoma, syphilis, and cholelithiasis. The pain may radiate to the shoulder, side of the neck, the scapula or to the right arm. It may be driving, tugging, burning, or indefinite in character and is frequently aggravated by movements and pressure over the liver. The pain may be present in the left shoulder when the left lobe is involved. The pain is present when the convex surface of the liver is involved. It is a referred pain, the result of a disturbance of the sensory nerves. The phrenic nerve sends branches to the liver; this nerve has its origin from the fourth cervical, which also sends the sensory branches that supply the shoulder.

Pain that has its origin in the bile duct is colicky in character, is intense and periodic, and radiates to various parts of the body. It is not modified by external pressure, and is often accompanied by reflex symptoms as vomiting, pallor, collapse, chill, and an increased temperature.

Icterus is significant of an absorption of the bile.

Changes in the urine are frequently indications of liver disease. The quantity of urine excreted is diminished; and owing to its concentration the increased quantity of urobilin, indoxyl, and presence of bilirubin the color is darkened. The urea is decreased, ammonia is excreted, and the toxicity of the urine is increased.

The general health is disturbed usually in proportion to the extent of the involvement of the organ.

These disturbances may take the form of a change in the disposition, emaciation, loss of strength, and an appearance of illness ; while apparently trifling causes aggravate all the symptoms.

Ascites, enlargement and tenderness of the spleen result when there is a disturbance in the hepatic circulation ; the heart is disturbed and palpitation, irregular action, a sensation of oppression, and attacks of angina pectoris result. In icterus the heart action is slowed, pruritus develops, and there are mental disturbances as drowsiness, unconsciousness and sometimes delirium.

The poisons that give rise to these symptoms vary in origin. They may be a product of the diseased liver cells, or the result of a putrefactive process in the intestines, or they may be constituents of the bile that has entered the circulation. The attacks of hepatic auto-intoxication are more apt to terminate fatally than those due to uremic or diabetic poisoning.

The temperature is usually normal. At times in icterus it may be sub-normal, while in suppurative processes it is above normal and assumes an irregular type.

ACUTE CONGESTION OF THE LIVER.

Synonym.—Active Hyperemia.

Definition.—This is an acute engorgement of the liver with blood that is not dependent upon any obstruction to the flow of blood from the organ.

Etiology.—It is present within physiologic limits following a meal. It is dependent upon the consumption of rich foods, spices, alcohol, upon the acute in-

fectious diseases, gout, indigestion, dysentery, malarial typhoid fever, amenorrhea, ptomaine poisoning, or the sudden suppression of some discharge. Chilling of the surface, heat and vasomotor disturbances, such as occur in cases of traumatism, are also etiologic factors. It may occur during menstruation.

Pathology.—The liver is enlarged, the arteries are dilated and contain an excess of blood. The tissues are of a brighter red color than is normal.

Symptoms.—These are often indefinite. There may be a feeling of fulness and uneasiness in the right hypochondrium, with some tenderness upon pressure. Constipation may be present with loss of appetite, furred tongue, and headache. The complexion is often muddy and a slight jaundice may be noticed. The patient is irritable and suffers from mental depression, headache and dizziness. There is often a slight rise in the temperature, which is most pronounced between 4 and 5 P. M. Icterus may appear, and be severe in the menstrual form. The urine is highly colored, scanty, of high specific gravity, and the urobilin is increased.

Upon physical examination, the liver may be slightly enlarged and tender upon pressure under the costal margin.

Prognosis.—In itself this disease is not dangerous, and if treated, seldom lasts longer than one week. If long continued it may become chronic and form the early stages of hepatic cirrhosis.

“Tropical liver” is a term applied to the condition found in those who have had repeated attacks of acute congestion of liver in hot climates. There is a

history of dysentery, malaria, diarrhea, or indigestion. The patient is anemic, and complains of weakness, nervous debility and irregular action of the bowels. The spleen is enlarged as well as the liver.

Diagnosis.—This is based upon the clinical history of the case and the physical findings.

Treatment.—Gouty subjects as well as those who have suffered from malaria or congestion of the liver in the tropics should guard against those factors that tend to produce acute congestion. Gouty subjects should be guarded in their diet, others should avoid exposure, draughts and chilling of the surface. If any alcohol is taken, it should be with the meal and well diluted. Made dishes, pastry, sauces, and much meat should be avoided. Constipation should be corrected by the diet, exercise and habits. Active exercise, as walking, horse-back riding, rowing, etc., are beneficial.

During the attack the patient should remain in bed. Its management during the course of one of the infectious diseases is but the treatment of the primary disease. If due to a miasmatic infection of the tropics a change of climate may be necessary. If it is the result of traumatism, absolute rest and cold applications are indicated. All errors of the diet must be corrected. Those who are eating too much should be placed upon a low diet consisting of milk, skimmed milk, junket, whey, chicken broth, till such a time as the surfeit is carried off, when they should partake of but a limited amount of food and take moderate exercise. An abundance of water should be given.

Should this method of treatment not prove sufficient

it is advisable to relieve the bowels by means of an enema or one of the mineral waters, and as the acute symptoms subside, the diet should be gradually increased. A change of air is often beneficial. These cases are benefitted by a few weeks at any of the spas. The same method of treatment is beneficial in those cases dependent upon alcohol.

If the liver is painful, poultices should be applied. If these fail, cold applications may bring relief. If there is severe pain during respiration the side should be strapped.

Of the remedies most frequently of service in this condition are :

Mercurius dulcis 2x.—This remedy is indicated when the tongue is broad, and thick, and shows the imprint of the teeth and is coated yellow. The abdomen is tympanitic, the hepatic region is sensitive, and the liver enlarged. Salivation is present and the breath is fetid. The stools are clay colored and may consist of mucus. Their passage is attended with tenesmus. *Mercurius vivus* should be compared.

Podophyllin 2x.—When this remedy is indicated there is active congestion attended with a sensation of fulness in the hepatic region, and a localized pain. There is a diarrhea of a bilious type. Jaundice is present. There is a bitter taste in the mouth, and the anus is prolapsed.

Hydrastis Canadensis 1x.—This remedy should be remembered when the patient complains of a sensation of "goneness" in the epigastrium. There is a catarrhal condition of the gastro-intestinal tract with a congestion of the liver. The bowels are constipated.

The stools are pale and clay colored. The tongue is coated yellow and there is a bitter taste in the mouth.

Nux vomica.—When this remedy is indicated there is great tenderness in the hepatic region. The liver is enlarged and indurated, and there are shooting, darting pains through it. The bowels are constipated and there is ineffectual desire for stool. The attacks are usually produced by an excess of alcohol, or stimulating foods.

Leptandrin 3x.—This remedy is indicated when there is a constant dull pain in the hepatic region, and especially in the region of the gall bladder. There is great soreness of the head and eye-balls. The tongue is coated yellow. The stools are fetid, profuse and tar-like.

Iris versicolor 3x.—This remedy is indicated when there is headache and vomiting with blurring before the eyes. There is pain in the hepatic region and griping pain in the bowels.

Other remedies that should be studied are *Chelidonium*, *Berberis*, *Euonymus* and *Elaterium*.

Chamomilla.—This remedy is indicated in attacks that are brought on by a fit of anger or chagrin. There is a sensation of distress in the hepatic region which is aggravated by motion. There may be colicky pain with vomiting of bilious material, dyspnea, anxiety and jaundice.

Eupatorium perfoliatum.—This remedy should be remembered in hepatic congestion when there is great soreness and painfulness of the whole body and the extremities, as if the parts had been bruised or beaten. There is a sensation of tightness, fulness and soreness

in the hepatic region. There is a cough with soreness in the bronchi. The tongue is coated yellow. There is vomiting and purging of bile.

It is frequently the remedy in cases of influenza and of catarrhal fever when the above group of symptoms are present.

Other remedies that should be studied when fever is present are *Aconite*, *Belladonna*, *Bryonia alba* and *Veratrum viride*.

ACUTE HEPATITIS.

Definition.—This is an acute inflammation of the liver. It may terminate in suppuration or be non-suppurative in character.

Etiology.—The suppurative is considered under the heading of abscess, cholangitis, etc. The non-suppurative under the heading of acute yellow atrophy and cirrhosis. Acute hepatitis is frequently but a continuation of an acute congestion and is dependent upon the same causes. It is rare in temperate climates. Indigestion, rapid chilling of the body while sweating, and excessive drinking or bathing in cold water as well as the excessive use of alcohol are some of the more common causes.

Pathology.—This varies with the nature and the intensity of the inflammation. The capillaries are dilated and may show thrombosis. There is a catarrhal inflammation of the bile ducts. The liver cells may show a cloudy swelling, pigmentation or a fatty degeneration. There may be a diffuse small infiltration.

Symptoms.—These vary in severity from an acute

icterus gravis to those of a toxemic jaundice. The temperature is raised above 100° , when it is below this point the process is spoken of as acute congestion. Nausea and vomiting are frequently present. The bowels are usually constipated, but diarrhea may be present. The pain about the right shoulder is severe. The capsule of the liver may be involved and perahepatitis results. The liver is enlarged and tender ("liver-ache"), the abdominal walls are tense. The patient is low-spirited and irritable. A toxemic albuminuria may be present.

Diagnosis.—This is based upon a rise in the temperature (above 100°) with many of the symptoms of acute congestion. If jaundice is present this condition should be differentiated from acute yellow atrophy and phosphorus poisoning. The blood count will distinguish it from an abscess of the liver.

Prognosis.—This should be guarded, but with an active treatment, recovery without abscess will result.

Treatment.—This is in many particulars similar to that of acute congestion. The patient should be confined to the bed. The diet should be low and consist of milk, meat juices, broth, etc. Water should be given in abundance. Mild lemonade or soda water may be allowed, but alcoholic drinks should be withheld. The bowels should be kept freely open. They may be thoroughly emptied by a copious hot enema. The body should be bathed from time to time with tepid water, to control the fever and assist in allaying nervousness. If there is much tenderness and pain in the hepatic region, cold applications or poultices should be employed, or the side should be strapped, such as is done in cases of fractured ribs.

The abstraction of ten to fifteen ounces of blood from the liver has been performed to prevent suppuration. But it has been known to cause death. When able, these patients should seek a cool climate.

The remedies to be studied are those that have been considered under acute congestion. *Aconite* 3x or *Veratrum viride* 1x are usually indicated during the early stages. If the pain is severe *Bryonia alba* 3x or *Chelidonium* should be studied. If the fever assumes an intermittent type *Eupatorium perfoliatum*, *Gelsemium*, *Cinchona*, or *Cedron* should be studied. If there is a tendency to cirrhosis following these attacks, from five to fifteen drops of the tincture of *Bolbo* three times a day may assist in preventing it.

Hepar sulphuris and *Mercurius solubilis* are remedies to be studied when abscess is threatened. When suppuration has taken place the case becomes a surgical one.

PASSIVE CONGESTION OF THE LIVER.

Synonyms.—Nutmeg Liver, Cardiac Liver, Hepatic Asystole.

Cyanotic Atrophy.

Definition.—This is an enlargement of the liver due to a chronic venous engorgement.

Etiology.—This condition is a mechanical one, due to an obstruction to the outflow of blood through the hepatic veins. It may be dependent upon a mitral stenosis, or incompetency, or any disease of the right side of the heart, or any condition that throws extra work upon the right heart.

Other causes are changes in the lungs as emphy-

sema, chronic bronchitis, chronic interstitial pneumonia, congenital atelectasis, pneumonia, aneurism and compression of the lungs resulting from pleuritic effusion. A few cases have been found to depend upon a constriction of the hepatic veins, a narrowing of the cava due to chronic periphlebitis, or the pressure of tumors.

Pathology.—The flow of venous blood is embarrassed, a dilatation of the hepatic veins is produced, and as a result the liver is enlarged. The tissue of the organ is compressed and atrophy develops. The lobules are of a dark color. Frequently the cells in the central portion of the lobules contain a brown pigment, while the cells nearer the periphery contain lobules of fat. The term “nutmeg liver” has been applied to the condition presented by this arrangement. After death, when the distended capillaries have been emptied, the organ presents a retracted, flaccid appearance. The color of the organ varies greatly at different portions. The serous covering is cloudy and thickened. The veins are affected most from the backward pressure in the inferior vena cava as a result albuminuria without other evidences of nephritis appears. The liver may become cirrhotic.

Symptoms.—As the disease develops slowly there may be no symptoms apparent during the early stages. The enlargement of the liver may be first recognized by palpation and percussion, when the surface of the organ is found to be hard, tense, smooth, with rounded margins. In some cases it extends as low as the umbilicus. There is a sensation of tightness, heaviness and discomfort in the right hypochondrium. The

appetite is impaired and there is dyspepsia, flatulence, tympanites, and frequently a gastro-intestinal catarrh. Dyspnea and even orthopnea may result from the heart lesion. A systolic pulsation may be recognized over the liver in cases of tricuspid insufficiency. Should the case be of long duration, the liver may be reduced in size from atrophy of the parenchyma and an increase of the connective tissue, with a resulting reduction in the quantity of blood contained. In some cases inspection may be sufficient to recognize the enlarged liver.

Physical signs.—The lips, ears, and skin are cyanotic. There is a slight jaundiced tinge noticed at various points.

The liver is enlarged, smooth to the touch and firm; if the engorgement is marked, the liver is tender to pressure. If one hand is placed on the liver and the other in the right groin the liver may be felt to pulsate. If firm pressure is made upwards on the liver the veins of the neck will be disturbed.

The breath sounds and vocal vibrations in the base of the right lung may be interfered with, on account of the chronic portal obstruction. Ascites and chronic peritonitis may result.

Diagnosis.—This is based upon an enlargement of the liver. If it is dependent upon disease of the tricuspid valve the whole organ may pulsate.

The swelling may increase and diminish more or less rapidly, whereas in all other diseases in which the organ is enlarged it remains uniformly enlarged.

The liver is usually tender to pressure and a sensation of weight and discomfort is complained of. This

condition should not be mistaken for a case of hypertrophic hepatic cirrhosis. In the latter there are dilated veins in the abdominal walls. The liver is enlarged but the heart is not necessarily diseased.

Prognosis.—The prognosis is dependent wholly upon the cause of the congestion and its amenability to treatment. If it is dependent upon the heart, it may, like the heart, improve temporarily only to relapse again.

Complications.—Jaundice may result from a catarrhal condition of the duodenum. The antitoxic function of the liver and digestion are interfered with. The venous engorgement may result in pressure upon the renal veins and a diminution of the urinary excretion.

Treatment.—This must be directed to the cause whether it is dependent upon the heart, lungs or other organs. In those cases where the heart is the exciting cause, attention must be devoted to the improvement of its compensation. If it is showing the effects of the disturbance it should be protected from any excessive work and strengthened by systematic exercise. The quantity of fluid taken should be reduced, and such remedies employed as will favor diuresis and restore the broken cardiac compensation. The diet should be restricted, alcohol, sugar, new bread, highly seasoned and irritating foods should be avoided. Fish, lamb, milk and vichy half and half, with zwieback are beneficial. If pain is a prominent symptom, hot or cold applications should be employed, dependent upon the degree of relief obtained. If ascites is distressing paracentesis is always pallia-

tive and often curative. The remedies that should be studied when the heart is the cause are *Digitalis*, *Strophanthus*, *Crategus*, *Convallaria*, *Cactus*, *Sparteine sulphate*, and the *Iodides*.

When the disease is pulmonary in origin, suitable means should be adopted to its relief. Repeated attacks of chronic hyperemia demand exercise. The following remedies have an influence over the condition, *Euonymin*, *Carduus*, *China*, *Nux vomica*, *Chelidonium*, *Leptandra*, *Iris versicolor*, *Hydrastis Canadensis*, *Mercurius dulcis* and *Cholestrinum*.

HEPATIC CONGESTION IN CHILDREN.

This is common in those who are reared on artificial foods, and who eat much sweets and highly seasoned foods. In malarial sections it is found associated with an enlarged spleen.

Symptoms.—The child is pale, sallow, or there is a lemon tint to the skin. The features may appear bloated. The eyes are dull and the conjunctiva is muddy. The abdomen is enlarged, and upon palpation and percussion the liver is found extending downward; it may reach the umbilicus. It is hard and sensitive to pressure. The urine is scanty and high colored and contains bile. The stools are grey and chalky, similar to clay. They may be loose or constipated.

Treatment.—The diet must be regulated and such remedies as *Mercurius dulcis* 1x, *Mercurius vivus* 1x, *Euonymus* 1x, *Podophyllum* should be employed.

Acute hepatic congestion in children must be distinguished from a condition observed when the child

is fed upon a milk or a farinaceous diet. The stools are light colored, offensive, putty-like and watery. The appearance of the child is much as that described under acute hepatic congestion. The urine is red, rather than yellow, or it is white and chalky due to phosphates. In these cases a change of the diet from one of milk to one of meat-broth, albumen, eggs, with as little starch and farinaceous food as possible and the employment of such remedies as *Calcareo*, *Pulsatilla*, *Pepsin* and *Pancreatin* are usually sufficient to bring relief.

HEPATOGENOUS DYSPEPSIA.

Synonym.—Biliousness.

Definition.—This is a term applied to certain digestive disturbances that are dependent upon functional derangements of the liver.

Etiology.—There is a tendency to this disease in certain families, in whom it may take the form of acholia, hypocholia, or polycholia. In other cases there is a variation in the constituents of the bile. A failure of the urea-forming function of the liver will result in the saturating of the system with certain poisons. The uric acid diathesis is associated with disturbances of the hepatic function. Irregular gout and subacute gastric catarrh are also responsible for certain diseases. The exciting causes are errors of the diet, constipation, lack of exercise, extreme heat, chronic auto-intoxication and prolonged nervous strain.

Pathology.—The acute attacks are characterized by an increased secretion of bile; the subacute by a

diminished secretion of the bile, while in chronic forms the bile is altered both quantitatively and qualitatively.

Symptoms.—The acute form is oftenest found among children and presents the symptoms of an acute gastro-enteritis. Subacute and chronic forms are observed among adults with indications of a slight icterus of catarrhal origin. The skin and conjunctivæ are tinged yellow. The patient lives well and frequently drinks alcoholic stimulants. He is listless, apathetic during the day and sleeps soundly during the night, but may suffer from insomnia or be disturbed by dreams and does not feel rested in the morning, and has dark circles around the eyes. The tongue is coated in the morning; but clears off somewhat before noon. There is more or less epigastric distress with eructations after eating, and as the day wears on the intestines become distended with gas. There is more or less nausea, and at times vomiting after a full meal. The bowels are constipated. The stools are light-colored, black or gray, extremely offensive and may be hard. The pulse is full and small. The hands and feet exhale an unpleasant odor. The temper is uneven, he is apt to be morose, melancholy and irritable. There is severe frontal headache, which may involve the frontal nerves. It is most severe after breakfast and dinner and is aggravated by movements of the head and body and by the use of alcoholic stimulants.

Diagnosis.—This is based upon the clinical history of the case, the symptoms given, and the presence of an excess of urobilin and indican in the urine.

Prognosis.—This is favorable so far as life is concerned, yet it is difficult in many cases to ascertain the precise exciting cause and it is therefore difficult to correct the defect. In many cases the liver functions normally only under the most favorable circumstances. This is difficult to attain in certain individuals.

Treatment.—The management of these cases differs according to the requirements of the individual case. The cause of each case should be sought out and removed. Many of these patients are overfed, and this is as injurious as being underfed. The articles of diet which contain toxins or from which they are readily developed should be avoided. Starches, proteids, decomposed game, and "made-up" dishes should be used sparingly. Fried foods, rich gravies, and animal fats, which lessen the secretion of hydrochloric acid, should be avoided. Milk is beneficial in obstinate cases. Buttermilk or skimmed milk often agrees best. It is diuretic in action, assists in the elimination of the toxins and does not irritate the liver. Water should be taken in sufficient quantity to insure the excretion of at least three pints of urine during every twenty-four hours. Malt liquors and stimulants should be avoided by those with incompetent livers.

Coloclysters are of service in many of these cases, especially if atony or dilatation of the colon is present. They should be administered every day for two or three weeks or more, as a single irrigation of the colon is not sufficient to thoroughly remove all the fecal matter which is often semi-hardened and putrefying.

The amount of water employed at one time should not exceed two quarts. The temperature should be from 92° to 95°; following the evacuation of the bowels, a pint of cold water should be introduced into the colon and retained if possible. General baths should be employed frequently, that the skin may be kept in a healthy condition and to assist elimination. A cool or cold shower, sponge, or tub bath each morning for its tonic effect and a warm soap bath upon retiring for cleansing purposes meet the demands well.

The state of the circulation should be improved by such systematic exercise as will give tone to the whole system and strengthen the abdominal muscles. This may be accomplished by the use of gymnastics and massage, and by walking, mountain climbing, swimming, rowing, horse-back riding, and golf. The evacuation of the bowels should be full and sufficient. Proper diet, exercise and habits are usually sufficient to maintain normal action of the bowels.

Nux vomica.—This remedy is indicated in thin, irritable, careful, jealous persons, with dark hair, and of a bilious temperament. They are quarrelsome, spiteful, malicious, nervous or melancholic, and are prone to indigestion and hemorrhoids. They are over-sensitive to external impressions, to noises, odors, light, and every harmless word offends. They suffer from the ill effects of coffee, tobacco, alcoholism, and highly seasoned foods. There is constant nausea after eating. The stomach feels distressed an hour or two after eating. The bowels are constipated and there is frequently ineffectual desire for stool.

Euonymus.—This remedy is indicated in "bilious

attacks" when there is deficient secretion of the bile and there are indications of gastric catarrh and lithemia with gastric and intestinal indigestion. There is an intense occipital headache. The bowels are usually regular but the stools are deficient in bile. It acts well in from the 2x to the 6x.

Chionanthus.—This remedy should be studied in cases that are attended with a dull frontal headache. The head feels full and heavy. The complexion is sallow, and there is a yellowness of the conjunctiva. The appetite is poor, there is a profuse salivation, sour eructations, with rumbling in the abdomen. There is a shooting, griping sensation in the abdomen. The urine contains bile. The patient is listless, apathetic and indifferent.

Carduus Marianus.—This remedy is indicated in those who are sad, depressed and hypochondriacal. There is vertigo and a sensation of heaviness and dulness over the eyes and in the temple. The bowels are distended with gas. There is nausea with painful retching and vomiting of a sour fluid. The liver is swollen, painful and sensitive to the touch, especially the left lobe. The urine contains bile. The stools may be hard, brown and knotted, or they may be soft, thin and yellow, or of a light gray color. It is especially of service in those cases in which there are asthmatic symptoms associated with those of the liver.

Iris versicolor.—This remedy is indicated in hepatic derangement, when there is violent sick headache. It may appear as a dull heavy headache in the forehead with nausea, or there may be shooting pains

in the temple with nausea and vomiting. The headache may appear with marked regularity. It is preceded by a sensation of blurring before the eyes; it is aggravated by rest and is relieved by a continued motion. There is a loss of the appetite with the vomiting of sour bitter material. There is painfulness in the hepatic region, and pain above the crest of the ilium. The urine is dark red. The stools are soft, contain an excess of mucus, and their passage produces a sensation of burning in the anus.

Nitro-muriatic acid.—This remedy is indicated in the more chronic type of cases; cases of hepatic torpor, chronic hepatitis, and gastric catarrh, such as is present in hot damp climates, and is aggravated by the eating of meat and the drinking of alcoholic beverages. There is a habitual congestion of the liver, jaundice, and enlargement of the organ. The patient complains of a général malaise, a feeling of weakness and a great depression of the spirits. The urine contains crystals of the oxalate of calcium. From ten to thirty drops of the ix in a glass of water taken through a straw, three times a day, is of service.

Bryonia alba.—This remedy is of service in rheumatic, bilious subjects, with dark hair and complexions and with a firm muscular system, those who suffer from rheumatism during damp weather, that is either hot or cold. There are burning pains in the hepatic region. The digestion is deranged, there is a deficient intestinal secretion. The bowels are frequently constipated, the stools are hard and dry as if burnt. The great characteristics of this remedy are the stitching, tearing pains, the aggravation from

motion, the amelioration from rest, and the symptoms are worse at night.

Hydrastis Canadensis.—This remedy should be remembered in bilious states which are associated with gastric and duodenal catarrh. The tongue is large, flabby and presents a slimy appearance. It is covered by a yellow, furry coat. The appetite is impaired, there are sour eructations with a dull aching pain in the stomach. There is portal congestion. The skin and conjunctivæ are yellow, the urine is dark colored, and contains bile, while the feces are light colored.

Phytolacca decandra.—This remedy is indicated in patients of a rheumatic diathesis who suffer from chronic rheumatism and periosteal involvement. There are violent pains in the hepatic region that are attended with nausea, and vomiting. There are copious discharges from the bowels of a dark bilious material. There are obstinate hemorrhoids.

Mercurius dulcis 2-3x.—This remedy is indicated when the liver is sensitive. The mouth is ulcerated. The tongue is thick and has a yellow coating. The gums are swollen and there is salivation. The stools are watery, green, excoriating and cause soreness of the anus, and are attended with tenesmus.

Mercurius vivus.—This remedy is indicated when there is sensitiveness of the hepatic region. The liver is enlarged, hard and indurated. There is a degree of jaundice. The tongue is moist and furred yellow. There are sticking pains in the hepatic region, so that he cannot lie upon the right side. The stools are dark green, bilious and frothy, and excoriate the parts. During and following the stools there is great straining.

Ox-Gall.—This agent in a one grain dose before each meal and on retiring increases the functional activity of the hepatic cells as well as supplying bile to the intestinal tract. It is especially useful if the bowels are inactive, the stools gray, dry and hard.

Chelidonium majus.—When this remedy is indicated there is congestion of the liver and portal system. There are severe stitches in the liver and pain that extends through to the right scapular region. There is a headache which begins in the occiput and passes along the right side of the head to the right eye; it shows a tendency to periodicity and is aggravated at 11 A. M. The patient frequently feels nauseated but seldom vomits. There is a bitter taste in the mouth. The tongue is pointed and narrow.

Sanguinaria Canadensis.—This remedy is indicated when the catarrhal state begins in the upper air passage and passes to the bronchi and stomach. It passes off with a diarrhea which relieves the symptoms. There is nausea with congestion of the liver and pain under the right clavicle. The tongue feels as if scalded. There is a bitter taste in the mouth. There is a severe headache which begins in the occiput and passes along to the right eye. It is aggravated by noise, light and motion.

Aloe socotrina.—This remedy is indicated when there is uneasiness, pressure, torpor and a sensation of burning in the hepatic region. There are stitching pains from the liver to the chest. These pains are excruciating before and during stool, but are relieved after stool. The desire for stool is urgent, as there is a sensation of insecurity of the anus. There are

hemorrhoids which protrude like bunches of grapes. They are tender, sore, and hot, and are relieved by the application of cold water.

Leptandra Virginica.—This remedy is indicated in functional derangement of the liver when there is a constant dull frontal headache which may extend to the temples. The tongue is coated yellow in the center. There is a bitter taste in the mouth. There is more or less jaundice, the stools are tarry black and their passage is followed by a sensation of great weakness in the abdomen. There is a dull aching distress in the umbilical region and pain in the right shoulder and arm.

Ammonium iodidum should be studied when there is associated a catarrhal condition of the duodenum and biliary ducts.

Ammonium muriaticum.—This remedy should be remembered in fat, sluggish subjects who suffer from liver complaint, and gall stones. There is extreme and obstinate constipation. The stools are hard and crumbling, and require great effort in their expulsion.

Podophyllum.—This remedy is indicated when there is a general hepatic derangement and torpidity. The stools if constipated are white and clayey. If diarrhea is present, it is profuse and watery and pours from the rectum as water from a hydrant.

HEPATIC INSUFFICIENCY.

Definition.—This is a condition in which the liver performs its functions inadequately.

Etiology.—The most frequent cause is toxic agents

which enter the liver either by the lymph or blood vessels. Of these two routes the blood of the portal system is the most frequent, as it drains the intestinal tract, and carries with it many of the toxic agents that flourish there. These enter the portal circulation whenever the intestinal mucous membrane is diseased or its power of resistance is diminished. In other cases there is a reflow of toxic agents from the bowels through the bile duct to the liver.

Infectious bacteria may invade the liver and produce toxic effects, or organic changes that result in functional inactivity.

Traumatism that results in a destruction of the parenchyma of the liver; increase of the hepatic connective tissue, which leads to compression and obliteration of the tissue; atrophy of a portion of the liver, by occlusion of a blood vessel, are each etiologic factors as they result in the death of hepatic tissue. Tricuspid insufficiency of the heart, which interferes with the normal nutrition of the liver, and occlusion of the common bile ducts are also active causes.

Pathology.—The pathology varies with the etiology. In some cases there is an increase of the hepatic connective tissue. In all cases as a result of the hepatic incompetency the intestinal walls are deprived of the physiological action of the bile salts. The stimulus to peristaltic movements is wanting, and as a result there is a sluggish action of the bowels and an incomplete mixture of the digestive ferments with the intestinal contents. The albuminoids and carbohydrates are imperfectly digested and absorbed. The emulsification and saponification of fats are im-

perfect, and the system is deprived of this form of nutrition. As a result of the intestinal fermentation, there is a general auto-intoxication with cardio-vascular as well as nervous, hepatic and renal diseases.

Symptoms.—The most constant symptom of hepatic insufficiency is cholemia. This is the result of mechanical pressure upon the hepatic cells and blood-vessels to such an extent that there are retained in the blood certain substances which should be eliminated. The quantity of urea excreted is diminished in proportion to the hepatic insufficiency, and, as a result, symptoms arise which are similar to those of hepatogenous dyspepsia. Glycosuria is present if the liver is unable to properly elaborate the sugar and starches; as a result of this, there is muscular lassitude, loss of weight and derangement of the glandular functions.

In proportion to the derangement of the bile-forming function of the liver, the intestinal digestion, assimilation and general nutrition is interfered with; as a result, the patient becomes anemic. Sooner or later the kidneys are irritated and chronically inflamed, as a result of eliminating material that should be excreted by the liver. Various skin eruptions also appear, as the skin also assists in removing from the system this irritating material.

Diagnosis.—This is based upon the symptoms, and the clinical history of the case.

Prognosis.—The prognosis depends upon the etiology, the extent of the hepatic injury, and whether it can be corrected or not. Many of these cases yield readily to treatment, when they are once correctly diagnosed and the treatment is carefully outlined, and carried out religiously by the patient.

Treatment.—The management of this class of cases demands a most thorough investigation of the habits and life of the patient.

Hepatic irritants in the forms of alcoholic beverages, spices, condiments, flavored sauces should be avoided, as well as those articles of diet that depend to a very great extent upon the liver for their digestion and absorption. The diet should be a mixed one, consisting of bread stuffs, vegetables, cereals, eggs, milk, a limited quantity of meat and but little fats. The meat should be eaten but once a day. It should be broiled or boiled in preference to being fried or roasted, as the latter methods of preparation assist in maintaining the poisonous extractions and render it less digestible. The necessary albumin should be supplied by vegetables, eggs, milk, and a limited amount of meat. It requires about 100 grams of albumin during the twenty-four hours to maintain a normal equilibrium. Milk should form a part of the diet. It supplies a part of the necessary albumin, reduces the toxicity of the urine and the intestinal putrefaction. It should not, however, form too large a percentage of the diet, otherwise there will be a pronounced derangement of the cardio-vascular system and general nutrition. It does not contain a sufficient amount of iron. Starches and sugar should be partaken of liberally. They are not toxic nor do they form poisonous products in the intestines. They act as stimulants to the hepatic cells, furnish caloric energy and assist elimination. If they are partaken of to excess they favor meteorism, constipation and fatty infiltration of the liver.

If the injury to the hepatic tissue has been extensive, but little should be anticipated from medicines to stimulate the flow of bile. In these cases more will be realized from the ox-gall or the bile salts administered internally. They increase the functional activity of the hepatic cells, and supply the necessary bile to the intestines and assist digestion.

In those cases where it is dependent upon a toxic condition, *Baptisia*, *Echinacea* and *Chelidonium* are of service.

Operative procedure should be undertaken with precaution, as there is a tendency to hemorrhage.

FATTY LIVER.

Definition.—This is a condition in which there is an excessive amount of fat in the liver. When this excess is present without a diminution in the amount of albumin, it is termed “fatty infiltration;” when it is formed at the expense of the albumin, it is known as “fatty degeneration.” It is difficult to distinguish these conditions during life, as they are usually found associated at the autopsy. But degeneration of the liver may interfere with its functions while infiltration seldom does.

Etiology.—Fatty liver is present in cases of obesity and when fats and carbohydrates are taken in excess as food. A constant use of alcohol produces fatty cirrhosis, as well as the acute infectious diseases, as typhoid and typhus fever, variola, pyemia and erysipelas. In these cases it is dependent upon the toxins present. *Phosphorus*, *Arsenic* and *Antimony* also produce this condition. It is frequently present in wast-

ing diseases and those which limit oxidation, as tuberculosis. The lack of bodily exercise and mental activity, as well as castration, favor it.

Pathology.—The liver is usually enlarged, but may be normal in size, or even atrophied when accompanied by cirrhosis. When enlargement occurs it is uniform. The anterior border is smooth and round. The organ is soft and doughy, and upon section presents an oily surface that is of a pale yellow or grayish white color. The changes begin in the outer zones of the lobule, and continue until the whole lobule is involved. During these stages the fat is deposited about the cell nucleus as small droplets or granules, which gradually increase till the nucleus is obscured and the cell is filled, and its wall distinguished with difficulty. These changes go on until fat constitutes from 75 to 80 per cent. of the whole organ, whereas 3 to 5 per cent. is normal. The portal circulation is not interfered with. The bile is decreased in quantity.

Symptoms and Physical Signs.—The symptoms are ill defined. There is a temporary fatty infiltration following the ingestion of food rich in hydrocarbons. This condition becomes constant in those cases where oxidation is imperfect, and when there is a continuous indulgence in an excess of fat forming foods. It is found in the obese, in gourmands, and in those suffering from pulmonary diseases that interfere with oxidation.

Fatty degeneration has been observed frequently in drunkards, those suffering from infectious diseases, and all conditions where there is a prolonged high

fever. The area of hepatic dulness is increased downward, not upward. Upon palpation the organ appears smooth and rounded, in some cases it is soft and doughy. The skin at times presents a greasy velvety appearance, or is smooth or glistening. There is no pain. It is attended with catarrh of the gastro-intestinal tract. There are no indications of ascites or portal stasis or jaundice. As the disease advances, diarrhea is common and there are signs of anemia, hydremia, and indications that the liver is not performing its function.

Diagnosis.—This is often impossible, although when a liver is found uniformly enlarged and smooth, with round edges and doughy, with a tendency to diarrhea, without any ascites, or jaundice, and the patient is of the obese type, it is probably a case of fatty liver; or should this type of a liver be found in one suffering from any disease that interferes with oxidation, it is also probably a fatty liver.

FATTY LIVER.

- (1) The organ is soft and doughy to the touch.
- (2) There is usually no enlargement of the spleen, and kidneys do not show involvement.
- (3) Ascites is not present.

AMYLOID LIVER.

- (1) It is hard and distinct to the touch.
- (2) Spleen and kidneys are usually involved.
- (3) Ascites is frequently present.

FATTY LIVER.

- (1) The organ is soft and doughy to the touch.
- (2) Usually no ascites or splenic enlargement.

FATTY LIVER WITH CIRRHOSIS.

- (1) Organ is firm and roughened to the touch.
- (2) Usually ascites and splenic enlargement.

FATTY LIVER.

- (1) Leukocytes normal.
- (2) Spleen of normal size.
- (3) Liver soft and doughy.

ENLARGEMENT OF THE LIVER
DUE TO LEUKEMIA.

- (1) Leukocytes increased.
- (2) Spleen is enlarged.
- (3) Liver hard and edges distinctly felt.

FATTY LIVER.

- (1) Cause of enlargement, see the etiology.
- (2) No change in the urine.

CLOUDY SWELLING.

- (1) From an infectious disease or intoxication.
- (2) May show casts and albumin.

Prognosis.—If it is possible to control the primary cause early in its history, the prognosis is favorable. In many cases this is impossible and as a result digestion and nutrition are interfered with and the prognosis is unfavorable.

Treatment.—The first aim should be to remove the causes that are producing the changes. If the patient shows a tendency to obesity, it should be corrected by withdrawing fats and carbohydrates from the diet and by regulated exercises. All beer and sweet wine should be avoided. The diet should not be reduced too quickly, because a fatty heart may be injured. Neither should the stimulants be withdrawn too quickly. The exercise should be gradually increased so that no organ may be overtaxed. If the patient is suffering from pulmonary disease and is taking cod-liver oil, the quantity should be limited. If perfect digestion can be secured the patient can partake of a greater quantity of carbohydrates. In those cases dependent upon alcoholism, the diet should consist of nitrogenous foods, fresh green vegetables, fresh juicy fruits, lean meats, boiled fresh fish, spinach, celery, lettuce, tomatoes, toast and gluten bread.

During the early stages of the disease one of the following remedies may be indicated:

Phosphorus.—This is the principal remedy in fatty degeneration. It is indicated when there is a clinical history of hyperemia of the liver, which is enlarged, tender, and attended with more or less jaundice. The stools are of a light color and show an absence of bile. The cardinal indications of the remedy are frequently present.

Antimonium crudum.—This remedy has been of service in these cases. It is usually indicated by the gastric symptoms. There are complaints from over-eating. The digestion is easily disturbed. There is a thick white coating on the tongue. The bowels are alternately constipated, and diarrheic, with a constant discharge of flatus both up and down. That which is belched tastes of the ingesta. There is great sadness with weeping and a sensitiveness to cold. There is a longing for pickles and acid foods which give rise to gastric and intestinal affections.

Chelidonium.—This remedy has been of service in a few cases. There is pain and tenderness in the region of the liver. There is also pain at the lower angle of the right scapula running into the chest. The stools may be either soft and of a bright yellow color, or they are light colored and constipated. The skin presents a yellowish-gray color.

Arsenicum.—This agent in its provings produces a fatty degeneration of the tissues, and has rendered assistance in curing some cases. The great prostration with rapid sinking of the vital forces is present. The patient is irritable, sensitive, and peevish. He

is anxious, restless, melancholic and despairing. He is greatly exhausted from the least exertion. There is a tendency to anasarca.

Iodoform.—This agent also produces fatty degeneration, and should be studied in those cases where it is associated with tuberculosis or syphilis.

Phytolacca decandra.—This remedy should be studied in fatty liver that is associated with cirrhosis.

ACUTE YELLOW ATROPHY.

Synonyms.—This is an acute diffuse inflammation of the parenchyma of the liver which terminates in destruction of the tissues.

Etiology.—It is more frequent among women than men, a large proportion of the cases being in young pregnant women. It most frequently attacks those during the third decade of life. The agents producing it have not been demonstrated conclusively, but it is believed to be due to an anerobic strepto-bacillus, cultures of which made from the liver of those having died of yellow atrophy, have developed a similar condition in guinea-pigs. It has been observed following certain infectious diseases, secondary syphilis, poisoning by lead, phosphorus, and ptomaines, mental disturbances, and alcoholic excesses.

Pathology.—Early in the course of the disease the hepatic cells are enlarged, but they lose their contour, and become granular masses of fatty material, which are absorbed in a short time, leaving only the connective tissue, blood-vessels and pigments. This necrotic degeneration is not uniform in all portions of the liver. During the early stages the organ is en-

larged, and, upon section, presents an anemic appearance, and is of greenish color. It becomes soft and friable; and, as absorption takes place, it becomes smaller, till it may be but one-third the normal weight. It is diminished in every direction. The capsule is thickened, and wrinkled, the blood-vessels are empty, and the contour of the lobules is lost. The spleen is enlarged while the urine contains bile pigment, leucin and tyrosin.

Symptoms.—The early symptoms are those of gastro-duodenal catarrh and catarrhal jaundice. This stage may last for a few days. In other cases the symptoms appear more rapidly. There is a rigor and severe nervous symptoms as headache, delirium, intolerance of light, stupor, convulsions and coma. The tongue is dry and coated. There is nausea and vomiting with hemorrhages from the mucous surfaces. At times subcutaneous petechia appear. There is a progressive diminution in the size of the hepatic area, while the abdomen is distended. The urine contains leucin and tyrosin, and possibly albumin; but it is deficient in urea, uric acid, chlorides, sulphates and phosphates. There may be recurrent chills and fever. The temperature may be high, but it is usually little above normal.

Diagnosis.—This is based upon the age, sex, the jaundice, the hemorrhages, the decrease in the area of hepatic dulness, an increase in the size of the spleen, and the peculiar urinary sediments; any one of these symptoms may be lacking.

ACUTE YELLOW ATROPHY OF
THE LIVER.

- (1) Duration rarely longer than one week and then terminates in death.
- (2) Only a slight or irregular fever; frequently the temperature is subnormal.
- (3) The bowels are usually constipated.
- (4) The size of the liver is much reduced.
- (5) There is jaundice.
- (6) No rose spots.

ACUTE YELLOW ATROPHY.

- (1) The first symptom is jaundice.
- (2) The diminution in the size of the liver is progressive from the first.
- (3) Seldom any abdominal distress.
- (4) The bones are not involved.
- (5) This is a parenchymatous hepatitis.
- (6) Most frequent in pregnant women under 30 years of age.

TYPHOID FEVER.

- (1) Duration three or four weeks; terminates usually in recovery.
- (2) There is a decided fever and typical temperature curve.
- (3) Usually there is diarrhea.
- (4) The liver is unchanged or increased in size.
- (5) No jaundice.
- (6) Rose spots are present.

PHOSPHORUS POISONING.

- (1) Begins with vomiting and purging.
- (2) The liver is enlarged prior to becoming smaller.
- (3) There are usually colicky abdominal pains.
- (4) Frequently necrosis of the inferior maxillary bone.
- (5) This is a fatty degeneration of the liver.
- (6) History of workers in phosphorus, or of ingestion of rat paste or match heads.

Prognosis.—This is usually unfavorable, the duration is from seven days to ten weeks. In pregnant women the prognosis is especially grave, as well as in those cases where the nervous symptoms appear early.

Treatment.—This is not satisfactory. Before the cerebral symptoms appear, the surroundings should be cheerful, the diet should be nutritious, fluid, and

free from starches, fats and sweets. Milk is the best diet. Stimulants should not be employed. If the nausea and vomiting is distressing, small pieces of ice or carbonated water, should be swallowed, or sinapisms applied over the stomach. When the cerebral symptoms appear, ice bags or cold applications to the head are of service. If there is much nervousness, warm baths should be given. During this stage all means that will assist in eliminating the urea and uric acid, and the other products of disintegration, should be employed. As the stage of collapse appears, rectal stimulants should be administered. If fluids are not absorbed from the stomach, intravenous or subcutaneous transfusion of normal salt solution is of service.

Leptandra Virginica.—This remedy is indicated when there is aching and soreness in the region of the liver, which may extend to the umbilicus and spine. The patient often complains of chilliness and drowsiness, and is despondent. The stools are profuse, fetid and black like tar.

Phosphorus poisoning presents many of the symptoms of this disease, and the remedy should be remembered with *Arsenicum*, *Lachesis*, *Belladonna*, and the *mineral acids*.

AMYLOID DEGENERATION OF THE LIVER.

Synonyms.—Waxy, lardaceous, colloid, or albuminous degeneration.

Definition.—This is a painless enlargement of the liver due to a deposit within the hepatic connective tissue of a substance resembling and having some of the reactions of starch.

Etiology.—It is found in those of all ages, and may be congenital. It is more frequent among men than women, in those infected with either acquired or hereditary syphilis, also in those suffering from a chronic suppurative process especially of the bones, and in cases of tuberculosis or chronic malarial cachexia.

Pathology.—The liver may be greatly enlarged, anemic and denser than normal. Its surface is smooth, and its edges are rounded. It is of a pale yellow color or translucent. It is elastic and pits but slightly upon pressure. The process begins in the small blood-vessels and gives rise to a thickening of the walls. The liver cells as a result of a diminished nutrition and pressure undergo a brown atrophy or fatty degeneration. Occasionally they are involved in the degenerative process.

Symptoms.—The liver is enlarged in all cases, except where atrophic cirrhosis may have preceded this degeneration. The surface of the organ is smooth and firm, while its lower border is rounded and distinctly felt. There is no pain in the hepatic region, and palpation gives no discomfort, unless perihepatitis is present. The spleen is enlarged in a large percentage of the cases. Owing to the destruction of the hepatic cells and the lessened quantity of bile, there is decomposition of the intestinal contents, and as a result there are large formations of gas with tympanites. The stools vary in color, and may be light or dark. Diarrhea may be present as a result of the amyloid disease of the intestines, or of an ulceration of their wall from tuberculosis or syphilis. Anemia

is always present and usually leukocytosis. So long as the kidneys are free from the degeneration, the urine remains normal, but as they become involved the urine is increased in quantity, contains albumin, casts, and renal epithelium. As a result of the degeneration of the kidneys edema appears. Ascites is a late symptom except in those cases where syphilis or cirrhosis of the liver is present. The functions of the liver may appear normal for a long time. Jaundice does not occur except when there are other structural changes present.

Diagnosis.—This is based upon the presence of an enlarged firm liver with a smooth surface and rounded anterior margin that is free from pain and tenderness, in a patient who is suffering from a chronic suppuration, syphilis, tuberculosis or malarial cachexia.

AMYLOID DISEASE OF THE
LIVER.

- (1) The enlargement is persistent.
- (2) The surface of the liver is smooth.
- (3) There is usually no jaundice or ascites.
- (4) There is a history of syphilis, tuberculosis, suppuration or bone disease.
- (5) There is usually an amyloid disease of other organs, with tube casts and albumin in the urine.

CIRRHOSIS OF THE LIVER.

- (1) The enlargement is replaced by contraction.
- (2) The surface is usually irregular.
- (3) There is usually jaundice and ascites.
- (4) There is a history of alcoholism.
- (5) No such changes.

Other conditions from which it should be distinguished are leukemia, fatty liver, hydatid cysts and lymphadenoma.

Prognosis.—This is usually unfavorable, but depends upon the curability of the primary disease. The duration of the case is dependent upon whether the process involves the liver alone, or whether other organs are implicated. The more organs involved, the shorter the duration.

Treatment.—The prophylactic treatment is of the greatest importance, as all the conditions giving rise to the degeneration may be removed if early and persistent treatment is instituted. When the degeneration has once taken place the treatment is not satisfactory and yet clinical evidence demonstrates that recoveries do occur, when the primary disease is relieved. Bathing and massage assist by keeping the skin in a healthy condition. The diet should be one that is easily digested, and that is rich in proteids, as eggs, milk and cereals. It should contain but little sweets or fats. Constipation should be corrected by means of the diet. Cathartics should be avoided as well as other causes that may result in diarrhea, as it is often difficult to control in these cases. Chronic suppuration demands surgical treatment. In those cases where syphilis is the cause, such remedies as *Sodium iodide*, *Aurum muriaticum*, *Mercurius* and *Nitric acid* should be studied. *Ammonium chloride* in doses of the lower attenuations has appeared to render some service. In cases where the digestion is interfered with *Nux vomica* may be indicated. When the process is dependent upon tuberculosis, such remedies as *Phosphorus*, *Calcarea carbonica* and *Calcium iodide* should be studied; while *Silicea*, *Sulphur*, *Hepar sulphur* and *Calcarea sulphurica* have an influence over the suppurative process.

ABSCESS OF THE LIVER.

Synonym.—Suppurative Hepatitis.

Definition.—This is a circumscribed collection of pus within the liver.

Etiology.—This is due to the entrance of pus forming micro-organisms into the parenchyma of the liver. When single, the abscess is usually the result of an embolus finding its way to the liver from an ulcer of the stomach, intestines or gall-bladder. It may be due to traumatism, dysentery, or it may be dependent upon an infective inflammation in the biliary passage. Multiple abscesses usually result from suppuration somewhere in the area drained by the portal vein. It may be dependent upon pyemia, malignant endocarditis, pulmonary gangrene or putrid bronchitis. It is most common in tropical climates. It is favored by alcoholism, a stimulating excessive diet, and malaria. It is more common in males than in females, and in those of adult life.

Pathology.—Hepatic abscesses are single or multiple. Traumatic, dysenteric, tropical abscesses, are usually single, and generally occur in the right lobe of the liver. During the early stages a grayish or yellow-colored spot appears, surrounded by a hyperemic and inflamed area. The lobules gradually lose their lines of division, becoming granular in appearance. The central portion of the spot is at first hard, but in time a softening takes place, with the formation of a cavity, which gradually enlarges and may become of an enormous size. The cavity is filled

with creamy pus and curds of a yellow, brown, or red color. The abscess usually has no definite limiting membrane, but at times there is a partially formed pyogenic membrane which acts as a wall to the cavity. There may be multiple abscesses, and this is especially true if the cause has been suppurative pylephlebitis, infection of the biliary ducts, or if the abscess is metastatic in origin. If the cavity is small, the pus may be absorbed with the formation of a cicatrix, or inspissation and encapsulation may ensue. The pleura may become inflamed and the lower lobe of the lung compressed. If surgical procedures are not adopted, a large abscess may rupture into the pleura, bronchi, stomach, intestines, peritoneal cavity or externally.

Symptoms.—When the abscess appears during the course of an attack of pyemia, there may be no definite symptoms apart from a slight jaundice and an enlarged and sensitive liver. In a typical case, the onset is gradual, and malaise, languor, and general debility is complained of. The temperature curve may indicate a hectic condition. The fever may reach 103° or 105° . It is usually continuous at first, then remittent and later intermittent. There may be a chill accompanying the rise of the temperature which is followed by a profuse sweat, closely simulating malaria. In chronic cases there may be no pyrexia. Again the temperature may be continually high. The pulse is rapid and of a low tension. The liver is tender and enlarged, especially upwards. There is pain in the hepatic area that extends up to the right shoulder. The tissue over the liver may be tender

and edematous. There may be a slight jaundice, with nausea, vomiting and diarrhea. When the left lobe is the seat of the abscess ascites may appear. The spleen is enlarged if the abscess is dependent upon pyemia, but it is not in tropical abscesses unless malaria is present. Leukocytosis is present. Should there be much pressure upon the diaphragm, hic-cough, cough and dyspnea may result. The cough is spasmodic, and hacking in character, is worse at night and may be the first symptom noticed. Pleurisy may develop secondarily. If the abscess is superficial, it may appear as a hard tumor at the beginning while later fluctuation may be detected. It may discharge through the bronchial tubes, or it may rupture into the pleural cavity or into the peritoneum with fatal termination. Delirium, insomnia, and coma may appear before death. Arthritis may occur. Various nervous symptoms may be present.

Physical signs.—There is a gradual loss of flesh depending upon the duration and the intensity of the process. The face presents an expression of anxiety. The eyes are sunken. The complexion is pale with a muddy tint. The patient assumes a position upon the back or slightly favoring the right side.

The respirations are shallow, more rapid than normal, and are frequently attended with pain. Succussion causes a pain that is felt in the liver, the right shoulder, across the abdomen, to the pit of the stomach, or the right iliac fossæ.

There may be a rigidity of the upper portion of the right rectus muscle. The area of hepatic dulness may be greatly increased.

Palpation.—Besides eliciting tenderness and demonstrating an increase of the hepatic area, it may impart a sensation of ballottement.

Auscultation may reveal friction sounds, and at times a fine crepitation is recognized.

Diagnosis.—This is based upon the etiology, the local and the general symptoms. In suspicious cases the blood should be examined to ascertain whether leukocytosis is present. The liver is enlarged and there is a local tenderness which is constant and often severe, distinguishing it from hepatic congestion. A bulging of the ribs may be noticed in the lower portion of the thorax. Fluctuation may be observed if the abscess is near the surface. The use of a fine trocar and the puncture of the liver and the obtaining of pus is conclusive. It should be remembered that the trocar may miss the abscess or pass through it or become plugged.

ABSCESS OF THE LIVER.

- (1) Develops rapidly.
- (2) Chills and fever are present.
- (3) No fremitus.
- (4) Exploratory incision reveals pus.

ABSCESS OF THE LIVER.

- (1) There is history of chills.
- (2) No nodules.
- (3) Not a cancer cachexia.

HYDATID CYST.

- (1) Develops slowly and lacks the constitutional symptoms.
- (2) No chills and fever.
- (3) A peculiar fremitus is present.
- (4) Reveals the echinococcus hooklets.

CARCINOMA OF THE LIVER.

- (1) Chills, fever or sweats are not marked.
- (2) May be many nodules.
- (3) A cancer cachexia is present.

HEPATIC ABSCESS.

- (1) Severe pain follows the formation of pus.

PERIHEPATIC ABSCESS.

- (1) Severe pain precedes the formation of pus.

Abscess of the abdominal walls does not change its location upon deep breathing. Other conditions that should be differentiated are suppurative pylephlebitis, intermittent hepatic fever, pancreatic cyst, acute hepatitis, malaria, a dilated gall-bladder and pleurisy.

Prognosis.—In general this is unfavorable, but it is modified by the character of the infection. Pyemic and traumatic abscesses are usually fatal. Tropical abscesses are more favorable. The method of treatment is a factor in the prognosis, early opening and drainage of the abscess is an advantage. Any complications must be taken into account. A rupture externally into the lung or colon is considered much more favorable than a rupture into the peritoneum, or into the pericardium, which is nearly always fatal.

Complications.—The abscess may rupture and produce secondary inflammation and suppuration. Pleurisy or empyema may result from the infection, spreading through the diaphragm. Thrombosis of the inferior vena cava may result.

Treatment.—Those living in tropical climates should live temperately. Rich foods should be avoided. Personal hygiene should receive careful attention and a high physiological state of all the functions of the body should be maintained. All drinking water should be boiled for at least twenty minutes and then filtered. The filter and all cooking utensils should be kept scrupulously clean. All diseases that may lead to the entrance of infection should receive prompt treatment to avoid such results.

Prior to the stage of suppuration the patient should be kept quiet in bed. The diet should consist of non-stimulating and easily digested articles. The stomach should not be over-loaded. The food should be given at frequent intervals, at least once in three hours. Milk in its various forms, animal broths, and eggs should form the main articles of the diet. Solid foods should be avoided with the possible exception of milk-toast, sweet-breads, white fish, and a few oysters. Fats in any form should not be employed. If a stimulant is demanded it should consist of a little champagne, a little weak brandy well diluted with Vichy or Apollinaris water. Strong Port, Sherry and malt liquors should be avoided.

An opiate is rarely required to relieve the pain, as applications of heat, either dry or moist are usually sufficient. During the very early stages an ice bag is of service.

When pus has once formed, a thorough opening and evacuation of the pus is demanded and yet some remedy may be of service in relieving the urgent symptoms.

Arsenicum album.—This remedy is indicated when there is rapid and great prostration with sinking of the vital forces. There is great anguish and fear of death. The pains are burning in character and the affected parts burn like fire. *Chininum arsenicosum* is indicated by much the same group of symptoms. There may be more distinct periodicity of the symptoms and its action is deeper.

Mercurius should be remembered when there is the nightly aggravation. The patient is worse from the

warmth of the bed, and in damp, cold rainy weather. The perspiration although profuse does not bring the desired relief. The bowels are loose, and the portal circulation is embarrassed.

Lachesis.—This should be remembered when there is the pronounced aggravation of all the symptoms after sleep, so that he awakens distressed and unhappy. The blood is decomposed and the hepatic region is sensitive to pressure.

Vipera torva.—This is of service when there are violent pains in the liver. There is jaundice and fever and the pains extend to the liver and hip. There is a sensation as though the parts would burst.

Echinacea.—This should be studied when there are indications of blood poisoning and a general septic condition. There is profound prostration and all the symptoms of septicemia.

Following the evacuation of the abscess, fresh air and a nourishing diet are indicated, as well as such remedies as are known to have a favorable action in controlling the suppurative process, as *Hepar sulphur*, *Calcarea sulphurica*, *Silica*, *Sulphur* and *Psorinum*.

HEPATIC CIRRHOSIS.

Synonyms. — Interstitial Hepatitis. Lænnec's Atrophy of the Liver.

Definition.—This is a condition in which there is a gradual increase of the connective tissue of the organ and a corresponding atrophy of the liver cells, together with a systemic poisoning.

Etiology.—It is a disease of middle life. Alcohol

is the most frequent cause (60 per cent.), while lead, copper, phosphorus and arsenic are each responsible for some cases. Cirrhosis is found associated with gout, diabetes, rickets and dyspepsia as well as with syphilis, tuberculosis, malaria and auto-intoxication of intestinal origin. It has occurred as the result of a chronic exudative perihepatitis.

Pathology.—The cirrhosis may be atrophic, hypertrophic or biliary. During the early stages of the hypertrophic form known as “Gin-drinkers’ Liver,” the organ is enlarged, and this condition may persist to the end, but in the majority of cases the liver is contracted, hard, granular and irregular in outline. Upon section dense bands of connective tissue of a dull gray or white appearance may be seen, while the enclosed acini are of a yellowish or brownish color. The tissue-change begins as a proliferation of the connective tissue around the interlobular branches of the portal vein. The superficial veins of the abdomen become dilated and prominent, especially in the region of the umbilicus, where it gives rise to the so-called “caput Medusæ.” The connective tissue becomes sclerotic, and there is a gradually increasing pressure upon the portal vein, resulting in obstruction of the circulation. The acini are compressed and become atrophied.

Hypertrophic cirrhosis is observed most frequently in warm climates. The organ is enlarged, smooth, indurated and granular, and while there is proliferation of the connective tissue, it does not produce cicatricial contraction to the same extent as the atrophic form. Proliferation of the liver cells themselves is

often observed as well as the formation of columns of low cylindrical cells within the newly formed connective tissue. The spleen is enlarged, its capsule is thickened and shows perisplenitis.

Symptoms.—These are local and general. The former are dependent upon the deranged nutrition. During the first stage of the disease, the liver is somewhat enlarged and there are indications of gastritis, with retching and vomiting of mucus early in the morning. There is a loss of appetite, flesh and strength, with tenderness over the epigastrium. Eructations and constipation are present, and as the bowel-obstruction grows more pronounced, the symptoms become intensified. Ascites develops, distending the abdomen, and giving rise to pressure and weight. The distension is often so marked as to cause pouting of the umbilicus. Later there may be an anasarca. The spleen is greatly enlarged. There is gastro-intestinal catarrh, usually with constipation, but sometimes accompanied by diarrhea, and at times severe hemorrhages. Hemorrhoids are always present. There is seldom any jaundice, although the skin may present a yellow tinge or be of a grayish earthen color. There is a general muscular wasting. The urine is diminished in quantity.

Diagnosis.—The diagnosis of atrophic cirrhosis is based on the history of alcoholism, gout, malaria or diabetes in a patient about middle life, together with abdominal ascites and a diminution in the size of the liver. The hypertrophic form is met with in persons under forty, and even in children. There is seldom a history of alcoholism.

CIRRHOSIS OF THE LIVER.

- (1) The enlargement is replaced by contraction.
- (2) The surface is usually irregular.
- (3) It is attended by ascites and jaundice.
- (4) A history of alcoholism.
- (5) The other organs are not involved.

AMYLOID DISEASE OF THE LIVER.

- (1) Enlargement is persistent.
- (2) The surface is smooth.
- (3) It is not as a rule.
- (4) A history of syphilis, tuberculosis or suppuration.
- (5) Other organs are involved.

CIRRHOSIS OF THE LIVER.

These may be associated.

- (1) There is enlargement, later diminution in the size of the liver and jaundice.
- (2) Seldom any albumin in the urine.

PERIHEPATITIS.

- (1) These are wanting.
- (2) May be albumin in the urine.

CIRRHOSIS OF THE LIVER.

- (1) The discoloration usually appears gradually.
- (2) There is enlargement then shrinkage of the liver.
- (3) The abdominal veins are enlarged and intense ascites appears.

CATARRHAL JAUNDICE.

- (1) It appears more rapidly.
- (2) These are not so apparent.
- (3) Are not present.

The hypertrophic form should be distinguished from enlargements due to malaria. Chronic venous engorgement, leukemia, carcinoma, hydatid cysts, syphilitic disease of the liver, splenic anemia, and intra-hepatic suppuration.

Complications.—These are tuberculosis, hemorrhages, bronchitis, pleurisy with effusion, peripheral neuritis, and renal disease.

Prognosis.—This depends upon the cause. When

the disease is recognized early, it may be checked and life prolonged, but almost all cases terminate unfavorably in from ten to fifteen years; the acute cases in much less time. The duration depends upon the efficiency of the compensatory collateral circulation.

Treatment.—All those articles of food and drink that are known to give rise to cirrhosis should be avoided, such as alcohol in all forms, spices, highly seasoned foods and coffee. During the last stages of the disease a small amount of alcohol is of service, as it prevents a collapse. When the stomach is irritable and gastric catarrh is present, lavage is often of service. It should be practised with great care lest a varicose vein at the lower end of the esophagus be injured. If the gastric irritation is pronounced, rectal feeding may be indicated. The patient should take a great deal of rest.

In cirrhosis without ascites, a milk diet should be employed for two or three weeks. From three to four pints should be taken during the twenty-four hours. It may be diluted with Apollinaris, Vichy, Carlsbad or soda water. They should be taken hot an hour before meals. If the digestion is defective the milk should be peptonized. If it produces nausea give it skimmed. Crackers and toasted bread may be allowed with the milk, but no other forms of food. During this time, large quantities of hot and aerated waters should be taken while the stomach is empty, the object being to wash out the whole system, especially the liver. Following the period a light diet should be allowed. Sweets, pastry, fried foods, sauces, fats and condiments should be prohibited. The skin and bowels should be kept active at all times.

When ascites is present the quantity of fluid ingested should be restricted, and a diet of milk and dry bread administered. If the urine is already scanty, it is not advisable to decrease the amount of fluid too much. The "grape cure" has been advocated. Koumis is of great service in alcoholics, as it appears partially to relieve the craving for stimulants. When the ascites become a permanent factor, and the well selected remedy does not remove it, paracentesis, an operation to produce vascular adhesions around the liver, diuretics, or purgatives must be resorted to. In these cases full doses of *Epsom salts*, *Elaterium* or *Mercurius dulcis* (*Calomel*) are of service.

Hydrastis Canadensis.—This remedy is indicated during the early stages of many of those cases. It is useful in chronic alcoholism, where there is general debility, atonic dyspepsia, and where the whole digestive system seems to be inoperative. In other cases there are symptoms of catarrhal gastritis. The patient is unable to take any food into the stomach until he has had his morning "bracer." There is frequently a condition of constipation, with hepatic congestion and catarrh of the bile ducts. In these cases three to five drops of the tincture of *Hydrastis* in hot water before meals is of excellent service.

Arsenicum album.—This remedy is indicated in old alcoholics who suffer from gastric catarrh and irritable stomach. The patient is weak, prostrated, restless, anxious and has an unquenchable thirst for small quantities of water at frequent intervals. There are burning, griping pains in the stomach, followed by

vomiting and great prostration. Water is vomited as soon as it becomes warm in the stomach. There is heartburn with raising of hot water. Diarrhea is often present. The stools are small in quantity, of a dark color, have an offensive odor and are followed by great prostration.

Nux vomica.—This remedy is indicated in the gastric complaints of those who have been high livers and have over-indulged in spirituous liquors. They are of the nervo-bilious, thin, spare, irascible type, and are extremely sensitive to all external impressions. They are cross, fidgety and worn out, and cannot bear opposition. The appetite is impaired. There are eructations which are painful, bitter and sour. There is nausea with a feeling that if he could only vomit he would be better. The gastric region is sensitive to pressure about one half-hour, after each meal. Pains develop in the stomach and radiate in various directions. The liver is enlarged and tender, and there are sticking pains in it. The bowels are usually constipated. There is a constant, ineffectual urging to stool, which when passed is incomplete and unsatisfactory.

Chelidonium majus.—This remedy is indicated when the liver, lungs, kidneys and digestive organs are deranged. It is frequently of service in congestion and inflammation of the liver with jaundice which is dependent upon an acute or chronic hepatitis. The patient is depressed in spirits. He forgets what he wants to do, or has done. He has a headache which is at times frontal, and again extends from the nape of the neck to the occiput. The pain is vio-

lent and throbbing in character, it is worse on the right side, and the patient is compelled to draw up the shoulders, carry the head back, and step lightly. The complexion is yellow, as if jaundiced. The tongue is coated in the morning with a thick coating which can be partially rubbed off. Nausea with inclination to vomit is present much of the time. The patient desires milk to drink, and has a longing for wine, which relieves the abdominal pain. The liver is congested, is sensitive to pressure, and there is pain under the inferior angle of the right scapula. In enlargement of the liver, Burnett believes the perpendicular measurement of the organ to be the one particularly affected.

Carduus Marianus.—This remedy is indicated in those who are sad, depressed and hypochondriacal. There is a dull pain in the forehead over the eyes or in the temples, with want of appetite, bitter taste in the mouth, great nausea and vomiting of a sour green fluid. The liver is enlarged and painful, especially the left lobe. Burnett says: "The kind of liver-enlargement which *Carduus* cures, is enlargement of the transverse measurements." Constipation may alternate with diarrhea. The stools are usually brown. The urine is of golden yellow color. The respirations are asthmatic. There is a severe cough, of such a character that he is obliged to sit up in bed, the expectoration being thick and tough, and at times composed of pure food. There are severe stitches in the right side, connected with hepatic disease, such as jaundice or gall-stones. With the jaundice there is pain in the stomach and vomiting of a green, acid

bile. Brown sternal patches and tenderness over the cervical and dorsal vertebræ are occasional symptoms.

Mercurius dulcis.—This remedy has been employed when there is intestinal catarrh, great soreness over the liver, and slimy or clay-colored stools the passage of which is accompanied by a “never-get-done” feeling.

Podophyllum.—This remedy is of service principally as an intercurrent in cases where the liver is torpid, congested and sensitive. The face and conjunctivæ are yellow. There is a bad taste in the mouth. The tongue is yellow and takes the imprint of the teeth. The bowels may be constipated with clay-colored stools, or there may be a diarrhea, which is watery and profuse and pours from the rectum like water from a hydrant. This is followed by a sensation of great weakness and prostration.

Aurum muriaticum.—This remedy possesses more clinical evidence of its influence over actual cirrhotic liver than any other. Its action upon the liver is pronounced. The mental condition of the patient is characteristic. The mind is clear upon all topics except that of his health. He imagines he has all sorts of diseases, which produce palpitation of the heart. The mind is greatly depressed. He is irritable, out of humor and inclined to suicide. He complains of a constant sensation of burning, stitching and tension in the right hypochondrium. The liver is enlarged, swollen and tender. The spleen is also enlarged. The abdomen is sensitive to touch and ascites is present. Other forms of gold that have been of service are Bromide of Gold and Arsenic and the Chloride of Gold and Sodium.

Argentum nitricum.—This remedy is useful for the relief of the gastric symptoms of some of these cases. There is great craving for sweets, but they disagree. There is great accumulation of gas, which presses up and causes dyspnea. There are efforts to belch, which is accomplished in time, the gas coming up noisily. There is gastralgia and vomiting of glairy mucus, which relieve the pain.

Bolbos.—This agent is employed by the natives and physicians of South America in treating hypertrophy, engorgement and cirrhosis of the liver. Some of the cases reported were characterized by an increase in the size of the organ, a dilatation of the sub-cutaneous veins and slight ascites.

The tincture of the bark is employed. Beginning with five drops in water before meals, the first day, six drops the second day and increasing until fifteen to twenty drops are given at a dose. Then the dose is diminished in the same proportion until the five drop dose is reached again. The remedy must be continued for a long time to produce a cure.

Phosphorus.—This remedy produces an alteration of the liver structure. There is a degeneration of the liver cells with proliferation of the cells in the interstitial tissue and the appearance of jaundice. When it is indicated, the patient complains of a sensation of great weakness and emptiness in the abdomen with great accumulation of flatulence. The liver is indurated and jaundice is present.

Lycopodium.—This remedy is of service when there is an excessive accumulation of flatus. The appetite is good, but a few mouthfuls fill the patient up. The liver is firm and sensitive to pressure.

There is tensive aching and ascites with edema of the lower extremities.

Iodium.—This remedy and its various combinations should be studied in these cases as well as *Ptelea*, *Euonymus* and *Plumbum acetate*, all of which render service in these cases.

MALIGNANT GROWTHS.

Synonyms.—Carcinoma and Sarcoma of the liver.

Definition.—These are morbid growths of the liver. They are characterized by pain, a cancerous cachexia, a progressive emaciation and the presence of nodules in the liver tissue.

Etiology.—They are seldom observed before the fortieth year of age, yet sarcoma has been demonstrated in children. Primary carcinoma of the liver is more frequent among men than women, while the secondary is more frequent among women. There is a hereditary predisposition in 17 per cent. of the cases. It may be dependent upon traumatism, or upon chronic irritation due to obstruction of the bile-ducts by gall-stones. Malignant sarcoma appears to be associated with hepatic cirrhosis in a few cases.

Pathology.—Carcinoma of the liver presents the same histological features as carcinoma elsewhere. The cells are epithelial in character with small vesicular nucleus and much protoplasm. They vary greatly in shape. In the cancerous masses large giant cells and spots of pigmentation are observed. The cells may undergo a mucoid change, when the cancer is spoken of as mucoid or colloid. The connective tissue stroma may undergo hyaline or myxomatous degener-

ation at times, the epithelial development being surrounded by interstitial trabeculæ. This form is known as adenocarcinoma. It appears either as one primary tumor within the liver-tissue, the remainder of the organ being normal, or there are, at various points through the liver, secondary cancerous masses which can usually be seen and felt projecting beneath the capsule.

Sarcoma of the liver is usually secondary to a growth at some point along the alimentary canal, from which small emboli of infecting cells pass to the portal vein to the liver. The primary focus may be difficult to locate.

Symptoms.—During the early stages, the symptoms are often indefinite. Ill health, progressive emaciation and loss of strength are the most prominent symptoms. As the case advances, anorexia, nausea and vomiting appear. In some cases there is excruciating pain, while in others it is absent. The patient may be jaundiced. Ascites, if present, is of moderate degree. The spleen is not enlarged unless the portal vein is obstructed. In some cases there is distress in the right hypochondrium and about the right shoulder. During the later stages there is a rise of temperature of from one to three degrees. There may be chills and an intermittent type of fever. Near the close there is edema of the feet and legs, with cachexia, anemia, and toxic symptoms as indicated by the headache, delirium, stupor and coma.

Physical signs—Inspections.—The face presents the appearance of a grave wasting disease, the eyes are sunken, and the skin has a dirty, sallow appear-

ance. The superficial abdominal veins are enlarged. If the emaciation is pronounced, the nodules in the liver may be seen to move with that organ during respiration.

Palpation.—The liver is palpable and feels hard and stone-like, except in cases of the soft medullary carcinomata. The cancerous nodules and the inequality of the surface of the liver are not always present in hepatic cancer.

Percussion.—This gives flatness extending at times in all directions, again only in the direction of the growth.

Diagnosis.—It is frequently impossible to determine the nature of the growth. The family tendency, the presence of a cancer elsewhere in the body, the age, the localized pain, the cachexia, the progressive enlargement of the liver and the umbilicated nodules all form a group of symptoms that are characteristic when fully developed.

CARCINOMA OF THE LIVER.

- (1) Pain is present.
- (2) The liver is often nodular.
- (3) There is a straw-colored carcinomatous cachexia.
- (4) Spleen, kidneys and intestinal tract may show no indications of the disease.
- (5) Not dependent upon syphilis, tuberculosis or suppuration of bone.

AMYLOID DISEASE.

- (1) Pain is absent.
- (2) The liver is always smooth.
- (3) This is not present.
- (4) These organs often show indications of the disease.
- (5) There is a history of congenital or acquired syphilis, tuberculosis or bone-suppuratation.

CARCINOMA OF THE LIVER.

- (1) Dulness upon percussion is confined to the right hypochondrium.
- (2) There are symptoms of hepatic derangement.
- (3) The new growth rises and falls with the organ during respiration.
- (4) Seldom any ascites.

CARCINOMA OF THE LIVER.

- (1) The surface of the organ is usually nodular.
- (2) There is a degree of ascites.
- (3) The liver is enlarged.

CARCINOMA OF THE LIVER.

- (1) The duration is seldom over a year.
- (2) Cachexia appears within a short time.
- (3) The spleen is not enlarged.
- (4) There is no softening.

CARCINOMA OF THE LIVER,

- (1) There are evidences of hepatic derangement.
- (2) The new growth rises and falls during respiration.
- (3) Percussion dulness is continuous with that of the liver.

CARCINOMA OF THE OMENTUM.

- (1) Dulness upon percussion is found in the epigastric, the umbilical, and the right and left hypochondriac regions.
- (2) These are lacking.
- (3) The mass is fixed.
- (4) Ascites is more common.

ICTERUS LIVER.

- (1) It is usually smooth.
- (2) Ascites is absent.
- (3) Not much enlargement.

MULTILOCLAR ECHINOCOCCUS

- (1) Duration is greater.
- (2) Cachexia appears more rapidly.
- (3) Usually enlarged.
- (4) May soften and render aspiration possible.

CARCINOMA OF THE STOMACH.

- (1) These are not present, but there is obstinate vomiting of a coffee-ground material.
- (2) The tumor is fixed.
- (3) Dulness may separate from that of the liver by an area of tympanitic resonance.

The liver and the stomach are both frequently involved, and in either case progressive emaciation, cachexia and secondary growths are present.

Prognosis.—This is unfavorable, except when the tumor is so situated that it can be removed. The course is from a few months to one year.

Treatment.—This is palliative to a great extent. The bowels must not be allowed to become constipated. To accomplish this, the diet and enemata should be relied upon to a great extent. If a laxative is demanded, a vegetable compound should be preferred to the sulphates. No purgative should be employed. When the pain is severe it must be relieved by hot or cold applications, or by an anodyne if necessary. In some cases *Atropine* 2x will be of service in the relief of the pain. Should there be vomiting this may be relieved by means of small pieces of ice in the mouth, sinapisms over the stomach or *Ipecacuanha*. Should the biliary ducts become obstructed, *Ox-gall* in one to two grain doses will assist the intestinal digestion. The diet should be mixed, but articles that give rise to irritation of the liver should be avoided, such as liquors, fats, highly seasoned foods, and salted meats. Milk is the best article of food and may be augmented by the use of soups and gruels. Too much milk should not be given at one time, as it then forms a large lump of casein in the stomach and will retard digestion. Koumis, sour milk or butter-milk are of service. Cream may be added to the milk. Meats are not well borne. Meat-extracts and peptones are allowable in small quantities. Fats are not well tolerated. All foods should be given in small quantities and at short intervals (three hours).

The skin should be kept in a healthy condition.

Warm baths are of service in all cases and especially if icterus is present. Should ascites become burdensome it should be removed by means of the aspirator.

While remedies have but little, if any, influence over the pathological condition, yet a well selected remedy is frequently of service in the relief of certain annoying symptoms.

Cholesterine.—Ameke, of Berlin, and Burnett, of London, have reported success with this remedy in cancer of the liver. Burnett says "I believe I have twice cured cancer with it." He also speaks of its use in cases of obstinate hepatic engorgement and semi-malignant affection involving the left lobe of the liver and what lies between it and the pylorus and the pancreas. Speaking of its mode of action he says, "I do not think that *Cholesterine* has any influence upon the disposition to cancer, but it acts by reason of its elective affinity for the seat of the disease." In speaking of the dosage he says, "I commonly use the 3x trituration in six grain doses, three times a day, but this will here and there act very violently, and when this happens I have found the third centesimal trituration effective." The author desires to express his indebtedness to this remedy in a severe case that simulated hepatic cancer.

Arsenicum album.—This remedy is of service when the general weakness and debility, the restlessness and anxiety which characterize the remedy are present. The pains are sharp, and burning in character.

Aurum metallicum and the *Aurum arsenicosum* are both of service at times when the mental despondency, the fear and anxiety relating to death are present.

Hydrastis Canadensis.—This remedy is frequently of service when there is constipation and loss of appetite. The complexion is sallow, the skin appears hidebound. There is mental despondency and a worn-out expression to the face.

Conium maculatum.—This remedy is of service in relieving the flying stitching pains which are worse at night, and especially if there is great hardness and infiltration. Frequently there is a history of traumatism. *Cedron* has also been recommended when the sharp pains are characteristic.

Chelidonium majus.—This remedy is of service when there is acute pain and tenderness in the region of the liver. There is pain under the right scapula. The stools are light colored, jaundice is present. The cancer is associated with gall stones.

Nux vomica.—This remedy is of service in allaying some of the gastric symptoms, when the characteristics calling for the remedy are present.

Hydrocotyle.—This agent has assisted in giving relief.

MYXOMA.

Myxoma of the liver is rarely met with, but a few cases have been reported.

FIBROMA.

Fibromata of the liver have been described in young children. It is probably an indication of congenital syphilis.

ANGIOMA.

Synonyms.—Nevus, Cavernoma.

These are more frequently found in the liver than in any other organ of the body. They may be congenital. Their most common location is immediately under the capsule. They may be single or multiple. There are no symptoms that are pathognomonic of angiomas, although the liver may be greatly enlarged as a result of their presence. It is impossible to make a positive diagnosis apart from an exploratory incision.

The prognosis is good in cases which have been operated on.

Treatment.—This is rarely called for, and when it is, it is surgical; electrolysis is preferable as a profuse hemorrhage attends many of these cases.

ADENOMA.

These may appear as a single adenoma which is composed of liver cells, or as multiple adenomata which are associated with advanced cirrhosis of the liver. The management of the latter is the management of cirrhosis of the liver.

HEPATIC CYSTS.

Synonyms.—Cystadenoma, Cystic Liver.

Definition.—These are cavities in the liver that are filled with fluid. They may be simple and solitary; the cysts in this class are usually malformation and are present at birth. Or they may be multiple, when they are scattered through the liver. The latter condition is spoken of as cystic disease of the liver.

Multiple cystomata, cystic liver, or cystic degeneration is intimately connected with the bile passages,

and are associated with similar and even more advanced changes in the kidneys.

Symptoms.—These may remain latent during life providing the cyst is small, and may only be recognized post mortem. The cyst may be so large as to cause ascites, and in the female may act as an obstacle in the delivery of the child. In other cases, it may compress the right lung, or cause icterus by interference with the liver. This condition should be suspected in a subject, with an enlarged liver and a cystic kidney, who has uremic symptoms. Cystic degeneration of the liver is more easily diagnosed than a similar condition of the kidney, but at times an exploratory puncture is necessary to establish a diagnosis.

Diagnosis.—When sufficiently large the cysts may be palpable. They should be distinguished from hydatid cysts by the examination of the fluid, which in these cases is albuminous and does not contain hooklets. This condition should be differentiated from ovarian cysts and an enlarged gall-bladder.

Prognosis.—This depends upon the condition of the kidneys; whether hepatic cirrhosis is present, and whether the bile passages and portal veins are implicated or not.

Treatment.—This consists of drainage in solitary cysts. In multiple cysts in aspiration of the ascitic fluid and drainage of the lower extremities; as opening of the cysts is useless and should if possible be avoided in performing laparotomy.

HYDATID CYSTS OF THE LIVER.

Definition.—These are the cystic, larval, or bladder stage of the *tenia echinococcus* of the dog.

They are frequently multiple; are most common in the right lobe, and may contain from eight to nine quarts of fluid. Infection is most frequent from the ova derived from the dried feces of dogs.

Symptoms.—It may produce no symptoms. The increasing size of the abdomen may attract the patient's attention. If the peritoneal covering of the liver is inflamed there will be tenderness, and pain upon pressure and during respiration. Dyspepsia, vomiting and constipation may result from the pressure of the cyst, as well as dyspnea from its interference with the action of the diaphragm.

If the hydatid is large there may be pleurisy with pain and cough. There may be pain referred to the right shoulder.

Physical Signs.—The liver is enlarged in proportion to the size of the cysts. The tumor is tense and elastic. The hydatid thrill is not pathognomonic as it occurs with other cysts.

Diagnosis.—This is based upon the presence of a cystic tumor of the liver with an absence of constitutional symptoms. The positive evidence is derived from the examination of the contents of the cysts.

Differential Diagnosis.—This condition should be distinguished from simple cysts, malignant disease, cirrhotic liver, gumma, leukemia, abscess and lardaceous degeneration.

The duration of the time during which a hydatid

cyst may remain alive and capable of active growth varies, but in some cases it has been known to be twenty years.

Prognosis.—This depends whether or not it is operated upon. It may die but there is no certainty of this. It may remain quiet for a long period and again it may suppurate with acute symptoms which are always dangerous. The size, rate of growth, and possibility of suppuration should be considered in each case.

Complications.—These consist of a rupture of the sack, secondary infection of the peritoneum, and acute inflammation with suppuration.

Treatment.—As the tenia is almost entirely derived from the feces of the dogs, care should be exercised by those who keep the dogs in the house. Raw vegetables should be thoroughly washed before being eaten, drinking water should be boiled. The offal of sheep, cattle and dogs known to be infected should be burned, or the animal destroyed.

The treatment of the disease is surgical. It consists in the evacuation and the removal of the cysts, which should be done thoroughly.

Electrolysis has been employed with a degree of success. The needle attached to the negative pole is introduced into the cysts while the positive pole connected with a sponge is applied to the surface.

HEPATOPTOSIS.

Synonyms.—Movable Liver. Wandering Liver.

Definition.—This term is employed when the liver leaves its normal position and forms an abnormal tumor.

Etiology.—This is most frequently observed among women who are past forty. A congenital defect, degeneration or atrophy, or elongation of the suspensory ligaments may be the cause; or it may be dependent upon tight lacing or a weakness of the abdominal walls. Injury, lifting of heavy weight, and violent expiratory efforts are among the more exciting causes.

Symptoms.—There is a sensation of pain, weight or discomfort in the hepatic region. Nausea, vomiting, flatulent distension, and constipation are present. There may be attacks of pain and jaundice that simulate bilious colic. In severe cases there are symptoms which simulate hepatic cirrhosis, as melena, ascites and hematemesis. In other cases the respiratory system is most affected, cough and dyspnea are the most apparent symptoms. An indefinite group of nervous symptoms may arise and simulate hysteria or hypochondriasis. In some cases there may be no symptoms produced by the movable liver.

Diagnosis.—This is based upon the presence of a movable abdominal tumor that resembles the liver in outline, that can be replaced to the position of the liver. The hepatic region is sunken and tympanitic when the liver is in its abnormal position.

This condition should be differentiated from an enlarged liver, a floating kidney, tumors, hydatid cysts of the liver, gall-stones, and tumors of the omentum.

Treatment.—Tight lacing and all causes that favor this condition should be avoided. The straight-front corset should be worn. A suitable abdominal bandage should be worn. It should be such as will

support the lower portion of the abdomen and assist in maintaining the liver in its normal position and at the same time increase the intra-abdominal pressure. The pad should cover the whole of the abdomen rather than the liver alone. An excellent support may be obtained by the oxide of zinc adhesive plaster. This should be wide enough to extend from the pubes to the ensiform cartilage, and long enough to extend around the body. The first piece is cut and passes around towards the spinal column, but is not permitted to meet posteriorly. When applying this support the patient should be in the recumbent posture. It should be applied first above the pubes and then gradually upwards, all the viscera having been as thoroughly replaced as possible before the support is applied. The second strap should be about three inches in width. One end should be applied to the right iliac fossa, from which point it should extend diagonally across the abdomen, thoroughly raising the viscera, and pass over the first support between the wing of the ilium and the short ribs on the left side. The third is applied in the opposite direction. Those conditions that induce a pendulous abdomen should be avoided.

The diet should be regulated to suit the individual case. If the patient is weakly with flabby muscles, the diet should be liberal and highly nutritious; if the patient is corpulent, and the liver and tissues in general are congested by an excessive proteid metabolism, the diet should be restricted. The bowels should be kept freely open. The tone of the abdominal muscles should be improved by exercise,

massage, and electrical stimulation. A few exercises that have given excellent service are: (a) The patient lies upon his back without a pillow, the arms are folded over the chest, without any assistance the patient raises himself to the sitting posture. (b) While in the original position the patient raises first one of the lower limbs to a right angle with the body, and then both, the knees are extended during this time. (c) Deep inspiratory breathing with the mouth closed and after a forced expiration.

Where other means fail, hepatopexy or hepatorrhaphy should be resorted to. The objections to surgical procedure at first are that there is often a general enteroptosis present and the supporting of the liver is relieved, but in part second, in the aged at least, an incision through the abdominal walls may become the seat of an abdominal hernia. In many of these cases the application of a carefully selected remedy is of service in relieving the digestive, nervous, or other symptoms.

LYMPHOMATOUS TUMORS OF THE LIVER.

These are but a part of a leukemic condition.

The liver is enlarged in over 50 per cent. of all cases of leukemia. The spleen also is enlarged in the majority of cases. If there is much enlargement of the liver there is a feeling of distress in the right hypochondrium and a sensation of fulness after the ingestion of a moderate meal.

In connection with the hepatic symptoms there is muscular weakness, edema, leukemic retinitis, enlargement of the lymph glands and both a relative

and absolute increase of the leukocytes. The urine contains an excess of uric acid and xanthin bodies.

The diagnosis of a leukemic liver should be made on the characteristic blood changes and the enlargement of the spleen and lymph glands.

The prognosis is unfavorable.

The treatment consists in a regulation of the mode of life and the employment of such agents as *Arsenic*, *Ferrum iodatum*, *Eucalyptus*, *Chininum arsenicosum* and the *Iodides*.

LYMPHADENOMA.

Synonym.—Hodgkin's Disease.

In a lymphadenoma the liver is usually involved. Tuberculosis may be implanted in these nodules late in the case. Apart from a slight enlargement of the liver there is no clinical evidence that the liver is involved.

The treatment is that of lymphadenoma in general.

HEPATALGIA.

Synonyms.—Pseudobiliary Colic, Neuralgia of the Liver, Nervous Liver Colic.

Definition.—This is a violent spasmodic pain in the region of the liver, that occurs independently of any recognized anatomical or pathological lesion.

Etiology.—In some cases it is difficult to state the cause. In others it is dependent upon menstruation, social excesses, mental excitement and emotion. It may be due to an over-indulgence in alcohol, tea, coffee or spices. The subject is of the hysterical, nervous type; young girls and women who are

anemic. In some cases it is dependent upon a spasm of the hepatic ducts, or of the blood-vessels.

Symptoms.—The pain begins in the right hypochondriac region. It may remain localized, or it may radiate. It resembles gall-stone colic in many particulars. The patient is restless, excited, pale and collapsed. The pulse is small and irregular. The pain is increased by pressure upon the liver. Vomiting frequently occurs. The temperature remains normal, and there is no jaundice or enlargement of the organ. There are frequently pains in other portions of the body which alternate with those in the liver.

Diagnosis.—This is based upon the neurotic character and disposition of the patient. The absence of jaundice, the normal size of the liver, the absence of gall-stones from the feces. The negative finding by the fluoroscope, and a normal temperature.

Treatment.—The first task is to improve the general nutrition of the patient. The mode of life, exercise, diet and occupation should be supervised. If anything is found to be responsible for an attack it should be avoided.

Massage of the hepatic region and abdomen are by service. The excretions should be examined to see if elimination is perfect. If the patient is anemic the nutrition should be improved. A cool sponge, or spray bath, should be taken each morning. A sufficient amount of fluid should be taken. In some cases the rest cure, with a large amount of food that is easily digested, and general massage is serviceable. Hot applications to the side are often beneficial in relieving the pain.

Magnesia phosphoricâ.—This remedy should be remembered when the pains are intermitting and darting in character and are relieved by warmth. It should be given in hot water, and frequently repeated.

Colocynth.—This remedy is of service in cases dependent upon emotion, and exposure. The pains are paroxysmal in character, are worse from motion and are relieved by rest and external warmth.

Dioscorea.—When the pains are intense they are relieved by moving about and bending backwards.

Chamomilla.—This remedy should be thought of for cases that are characterized by peevishness, sensitiveness and irritability.

Aurum et Natrum muriaticum.—Should be remembered in the neurotic cases.

SYPHILIS OF THE LIVER.

The liver is more frequently the seat of the manifestations of syphilis than are any of the other internal viscera. The disease may appear as an interstitial hepatitis, as a gummatous hepatitis or as an amyloid degeneration.

Syphilis frequently affects the fetus in utero, when the liver is involved and hydramnios is pronounced. These children usually die within a day or two following birth. If they live for a few months there is much stomach trouble, vomiting, diarrhea, and marasmus. The liver is enlarged and very sensitive to pressure and of a dark red color. The spleen is also enlarged. The child gradually becomes more exhausted and feebler till death. There may be small nodules throughout the organ that are whitish or

opaque in color. In other cases there are evidences of a more diffused syphilitic process.

In adults the hypertrophy attending these cases is usually irregular. The organ may be enlarged to such an extent that it extends to the crest of the ilium. This enlargement may be confined to one lobe, while another lobe is atrophied. The shape of the organ may be wholly modified as a result.

Symptoms.—In those cases where the liver is enlarged there is more or less discomfort in the hepatic region. Pain is present, which is constant and often severe. If there is a perihepatitis it may be referred to the right shoulder. There is more or less tenderness in this region. In some cases there is an ascites, dependent upon an involvement of Glisson's capsule. When ascites is present the spleen will usually be found enlarged and the urine contains albumin. Jaundice is not a frequent symptom, and when present the discoloration is not deep.

The disease appears gradually and there may be no definite symptoms at first, but unless definite treatment is undertaken early it assumes a chronic course and may last for years, the length of time depending upon the interference with the portal circulation.

Prognosis.—This is grave in infants. Many die at birth, some live two or three days, while others go on for two or three months, and a small percentage recover. In the acquired syphilis of the adult the prognosis is better, as the disease is usually controlled by proper treatment.

Diagnosis.—This is usually not difficult in the newborn. When a history of syphilis in the parent can

be obtained, together with indications of syphilis about the liver, such as enlargement and nodulation together with emaciation. In adults there is a history of infection, together with the general evidence of the disease. The liver is enlarged and sensitive to pressure; the left lobe is frequently the one involved.

Treatment.—Should there be much pain and tenderness about the organ, the patient should be put to bed and have hot applications applied and a light but nutritious diet administered, consisting of milk, gruels, vegetable broths and a limited amount of meats and fish. Constipation should be avoided.

Such remedies should be administered as meet the conditions and include the therapeutics of syphilis, for both the congenital and acquired forms.

PERIHEPATITIS.

Definition.—This is an inflammation of the peritoneal covering of the liver. It may be acute or chronic, serous, purulent, fibrinous or tubercular in character, and is local or general in extent.

Etiology.—It is often secondary, dependent upon a localized or general inflammation. It may be associated with a tubercular or cancerous peritonitis, gall stones, gastric ulcer, hepatic cancer or hepatic gumma. Tight lacing is responsible when it produces changes in the position of the organ. Traumatism is a causative factor. It may be dependent upon a disease that involves the interstitial connective tissue. It may result from infection in an adjacent organ as from a pleurisy.

Pathology.—In the acute form there is a plastic

exudate. The serous layers are covered with an exudate which renders them thicker than normal and opaque. In some cases the exudate is purulent and forms abscesses. These are most frequent to the right of the suspensory ligament and form what is known as the subphrenic abscess. In the more chronic form there is a hyperplasia of the connective tissue of the liver (Glisson's Cirrhosis); in time there is general contraction of the organ to half of its normal size, which interferes with the circulation to such an extent that ascites results. In certain cases there is a widespread fibroid process in which the spleen, peritoneum, pericardium, and mediastinum show these changes as well as the liver. Capsulitis of the spleen is common with a localized perihepatitis.

Symptoms. — These may be indefinite. In the acute fibrinous variety, severe pain appears in the hepatic region which is aggravated by deep breathing. There is also a circumscribed tenderness. Should these symptoms occur, together with some one of the etiological factors named, perihepatitis should be thought of. Friction sounds are present in some cases. If the liver is grasped by one hand placed posteriorly and the other anteriorly, and moved back and forward an acute pain is elicited which is referred to the area between the clavicle and the acromial process.

The chronic variety may run its course without producing any symptoms except those that are produced by thickening of the capsule and its adhesion to surrounding organs. Adhesions to the diaphragm result in a restriction of the respiratory movements;

or the hyperplasia of the connective tissue may result in hepatic cirrhosis with the symptoms incident to it. If the capsulitis has advanced for some time the liver and spleen may be contracted.

The suppurative form may be overshadowed by the primary disease. In other cases the onset is rapid. There are severe pains and tenderness referred to the hepatic region. The respirations are rapid, embarrassed and painful. There is nausea, vomiting and a slight jaundice. As the abscess becomes established all the symptoms of a hectic condition ensue, as irregular chills, fever, sweats, prostration, emaciation and leukocytosis. The tubercular form is usually but a part of a general tubercular infection and presents the symptoms incident to that disease.

Diagnosis.—The acute form is recognized by the severe localized pain in the hepatic region which is aggravated by coughing, pressure and any movement. The pain may radiate to the right shoulder. Friction sound and friction fremitus may be present.

In the chronic form the symptoms are similar. The area of hepatic dulness is increased. Biliary and portal obstruction are present.

When the adhesions become extensive the liver does not change its position readily upon deep inspiration and the symptoms are such as would indicate hepatic cirrhosis.

Suppurative hepatitis is recognized by the employment of an exploring needle. In some of these cases the wall of the abscess is thick, and the pus is dense, and as a result is not easily obtained.

Early in the case there is pain and tenderness. An examination of the blood shows leukocytosis.

SUBPHRENIC ABSCESS.

- (1) The early symptoms are severe.
- (2) It is preceded by abdominal symptoms.
- (3) There is usually normal pulmonary resonance and vesicular breathing.
- (4) Upon aspiration the fluid escapes more rapidly during inspiration.

EMPHYEMA.

- (1) The early symptoms are not so severe.
- (2) It is preceded by thoracic symptoms.
- (3) The dulness and absence of respiratory sounds are usually absent around the lower portion of the chest.
- (4) The escape of the fluid is not modified by inspiration.

A localized emphyema is differentiated with difficulty.

Tubercular perihepatitis presents the features of tuberculosis.

Prognosis.—This is dependent upon the cause in many cases. In the acute form the course is brief and the chances of recovery are favorable. In the chronic form structural changes are present and in time are such as may terminate life. In the purulent form the prognosis is grave, especially if it is dependent upon a perforation of the stomach or duodenum.

The prognosis is modified by the type of the infection. It is much graver when the staphylococcus or streptococcus are the exciting cause than when the pneumococcus is the cause.

Treatment.—In the acute form the patient should be kept in bed, hot applications should be employed to relieve the pain. Strapping of the side is of service. The diet should be such as is easily digested and yet nutritious. Milk during the early stages is preferable. The bowels should be loose.

In the acute form one of the following remedies may be of service: *Aconite*, *Belladonna*, *Bryonia*, *Sulphur*, *Chelidonium*.

In the chronic type the treatment is only palliative to a great extent, and the management of the case is similar to hepatic cirrhosis in many particulars, when *Iodine*, *Iodide of Arsenic*, *Saw Palmetto*, etc., may be of service.

In the purulent form surgical procedure is demanded, and as soon as the diagnosis and location of the pus is established, it should be evacuated and the cavity drained. Following this one of the following remedies may be of service: *Mercurius*, *Hepar sulphur* and *Silicea*.

"CORSET OR LACING" LIVER.

In this condition there is a groove transversely across the anterior surface of the right lobe of the liver. This is produced by the ribs under the constricting influence of the corset, tight waist straps or bands. The lappet or tongue of the liver may extend as low as the umbilicus. The isthmus that connects this portion with the organ varies in thickness, and may consist of a mere band.

Symptoms.—In the majority of cases there are no subjective symptoms. In a few cases pain is complained of as a result of the interference with the circulation in the lappet.

Diagnosis.—This is frequently difficult. The lappet generally moves during respiration. Its edge may be traced by careful palpation and found to be continuous with the liver.

It is liable to be mistaken for a movable kidney, an abdominal tumor, or a tumor of the liver. The colon or a band of the small intestines may lie in the groove and further augment the difficulty of a correct diagnosis.

Treatment.—Tight lacing should be avoided. A straight-front corset is preferable to one that constricts the waist. If there is much dropping a well fitting pad should be worn. Dyspeptic symptoms and constipation should be avoided. If there is much pain in the constricted portion it may be removed.

HEMORRHAGE INTO THE LIVER.

This may occur as small foci scattered through the organ, or beneath the peritoneal covering, or as a diffused hemorrhage. They occur as the result of traumatism, acute congestion, as is observed during tropical malaria, phosphorus poisoning and muscle poisoning. It may occur as a result of recurring fevers and during puerperal eclampsia.

The symptoms are not definite. It is to be suspected when during a hyperemia of the liver the symptoms are acutely aggravated. If the serous covering is involved there will be collapse, peritoneal symptoms, and a fall of the general blood pressure if the hemorrhage takes place into the abdominal cavity.

Diagnosis.—This is based upon the clinical history of the case and the local and general symptoms.

Prognosis.—This is dependent upon the cause whether it is amenable to treatment, and the damage done.

Treatment.—This is the management of the particular etiological factor operative in the case.

TUBERCULOSIS OF THE LIVER.

Tuberculosis is nearly always found to involve the liver when its presence in another portion of the body is a cause of death. The tubercle bacillus may enter the organ either by the hepatic artery, the portal vein, the lymphatics or the biliary ducts.

It may appear as a miliary tubercle, as a tubercle of the smaller bile ducts, as large caseous masses, or as tubercular cirrhosis.

Symptoms.—There may be no symptoms of the liver-involvement in the miliary form, but in the other forms the patient usually complains of great weakness, and a state of asthenia is rapidly developed. The urine is scanty, the urea is diminished and small amounts of albumin, indican, leucin and tyrosin may be present.

Jaundice is induced if there is any pressure about the bile ducts. There is edema of the upper extremities, and at times hemorrhages from the nose, stomach and bowels.

The usual symptoms of the late stages of tuberculosis are present, such as restlessness, delirium and sometimes coma.

Physical examination does not reveal anything definite. In some cases ascites develops, the liver is enlarged, smooth and tender to pressure. The spleen may be enlarged. In the hypertrophic tubercular cirrhosis, the liver is uniformly enlarged. The general symptoms imitate those of the alcoholic form.

Treatment.—This is similar to that of general tuberculosis, except that cod-liver oil is contra-indicated. It is frequently necessary to employ means that will remove the ascites.

ACTINOMYCOSIS.

Actinomycosis of the liver is rare. It is most frequently secondary to a lesion in the intestinal tract.

Symptoms.—There is abdominal distress, pain, constipation and localized swelling.

The diagnosis consists in finding the fungus.

The prognosis is grave.

The treatment is that of actinomycosis in the other portions of the body.

HEPATIC CALCIFICATION.

This condition is rare and may be primary or secondary. The former is exceedingly rare. It has been observed in cases of nephritis. The secondary form is observed in inflammatory deposits. Intra-hepatic calculi are also found through the liver.

INFARCTS OF THE LIVER.

These are rare. They consist of a well defined anemic area which may be square or pyramidal in shape. The liver cells are atrophied, granular and often contain fat globules.

They occur as a result of traumatism, arterial degeneration, embolism or thrombosis.

DISEASES OF THE HEPATIC ARTERY.

Aneurism.—This has been observed in subjects of

from 17 to 60 years of age. It is the result of embolism, traumatism, ulceration starting in the gall bladder or bile ducts and endarteritis deformans.

Symptoms.—One of the most common symptoms is pain, which is nearly always present and is often mistaken for biliary colic. If the aneurism presses upon the bile ducts, jaundice is usually present. The aneurism may perforate the peritoneum; more frequently it ruptures into one of the bile ducts and thus into the alimentary canal and is either passed by the bowels or vomited. Multiple abscess of the liver may be found associated with hepatic aneurism.

Diagnosis.—This is difficult to make during life. Many of these cases are regarded as duodenal ulcers or cholelithiasis. It has been mistaken for aneurism of the abdominal aorta.

Treatment.—This is symptomatic. *Baryta mur-iatica* and *Lycopodium* have been of use in similar conditions. Out of four cases operated on, three died.

Embolism.—This condition is rarely recognized during life and when it occurs necrosis of the liver and death speedily follow.

Septic embolism of the smaller branches of the hepatic artery occurs in hemic infections and gives rise to pyemic abscess.

Thrombosis.—This has been observed in atheroma of the hepatic artery.

Arteriosclerosis.—This is but a part of a general arteriosclerosis.

DISEASE OF THE HEPATIC VEINS.

Thrombosis.—This is rare. It may occur second-

ary to a hepatic lesion, or it may extend from the inferior vena cava.

Thrombosis of the hepatic veins presents many of the symptoms of thrombosis of the portal vein. The liver is enlarged, ascites is generally present and gastro-intestinal hemorrhages may result. The subcutaneous veins of the abdomen are usually dilated.

Diagnosis.—It is difficult to distinguish this condition from portal thrombosis.

The treatment is symptomatic.

Stricture of the Hepatic Veins: This is the result of cicatricial adhesion constricting the veins or the presence of tumors or cysts that press upon the veins. There is present a state of venous congestion of the liver, and a dilatation of the trunk of the veins between the liver and the point of the stricture.

The symptoms are similar to those of thrombosis of the hepatic veins.

Periphlebitis and endophlebitis of the hepatic veins is the result of an extension of an inflammatory process from the inferior vena cava and an adherent pericardium.

Suppurative phlebitis of the hepatic vein is the result of hepatic abscess. This results in general pyemia from the emboli passing into the circulation.

Embolism of the hepatic veins results from an embolus being forced backward from the inferior vena cava into the unguarded hepatic veins.

THROMBOSIS OF THE PORTAL VEIN.

Synonym.—Pylethrombosis.

Definition.—This is a condition in which there is a

thrombosis of the portal vein which does not suppurate.

Etiology.—This is the result of an inflammatory process extending from a surrounding organ involving the wall of the portal vein and produces a thrombosis. Among the inflammatory processes which may produce such a condition as cholangitis, pancreatitis, hepatic abscess, gastric ulcer, malignant disease of the abdominal viscera, and traumatism.

Pathology.—The vein is distended; the wall is thickened. If the clot is recent it is not adherent to the walls. It may be granular and decolorized. The spleen is enlarged. The intestine may show hemorrhagic infarction and gangrene.

Symptoms.—These vary with the location of the thrombus. The principal symptoms are abdominal pain, indications of intestinal obstruction, gastro-intestinal hemorrhage, ascites, enlargement of the spleen, diarrhea and symptoms of toxemia. The superficial abdominal veins are distended. The urine is diminished in quantity.

Diagnosis.—It is seldom that a correct diagnosis is made during life. It is based upon the symptoms as outlined. This condition should be distinguished from gastric ulcer and splenic anemia.

Prognosis.—The patient may survive if the process develops slowly so that a compensatory circulation can be established. If it develops rapidly the prognosis is not good.

Treatment.—This is symptomatic. Should ascites or hematemesis appear they should be managed as in cases of cirrhosis.

SUPPURATIVE PYLEPHLEBITIS.

This condition is usually secondary in ulceration and suppuration of the gastro-intestinal tract.

Symptoms.—There is first the evidence of the primary disease. This is soon followed by indications of a pyemic condition. The face presents an anxious, sallow, sickly appearance. The fever may be continuous but more frequently it is intermittent or remittent in type, while later the temperature may become subnormal. The pulse is soft, rapid and compressible. The respirations are quickened, chills are common during the early part of the illness. Jaundice may be present. The spleen is enlarged. Vomiting and diarrhea often become troublesome. Leukocytosis is present. Death results from coma, weakness, peritonitis, hematemesis or melena.

Diagnosis.—This is not always possible but a pyemic condition with indications of involvement of the liver in one suffering from an ulceration or suppuration of the gastro-intestinal tract is suggestive of pylephlebitis. It should be distinguished from tropical abscess, suppurative cholangitis, typhoid fever and malignant infections.

Prognosis.—These cases are uniformly fatal.

Treatment.—Prophylactic treatment is important. Suppuration and ulceration should be treated; apart from this the treatment is symptomatic.

THE GALL-BLADDER.

This is the fibro-muscular receptacle of the bile. It is pear-shaped. The fundus projects slightly be-

yond the anterior border of the liver and touches the abdominal wall just below the ninth costal cartilage. It is from three to four inches in length and has a capacity of from six to ten ounces. It terminates in the cystic duct which joins the hepatic duct and forms the common bile duct.

THE PANCREAS.

This organ occupies a transverse position in the abdomen, posterior to the stomach and anterior to the first lumbar vertebra. It extends from the concavity of the loop of the duodenum on the right to the mesial surface of the spleen on the left side of the body. It is from six to eight inches in length. The right end is known as the head and the left end as the tail. It is bent into an "S" shape to adapt itself to the spinal column and the surrounding organs.

It has two excretory ducts; 1st, the pancreatic duct (Duct of Wirsung), which extends the whole length of the gland; and 2d, the accessory pancreatic duct (Duct of Santorini), which is limited to the head of the organ. It runs above the main duct and communicates with it and terminates in the duodenum. The pancreatic duct unites with the common bile duct, which also enters the duodenum.

It is a compound tubular gland. The cells in the secreting portion of the alveolus are composed of a clear non-granular substance and are of the serous or albuminous type. The pancreas also has throughout its substance irregular masses of small, clear, ill-defined cells with nuclei. These are known as the bodies of Langerhans.

The pancreatic secretion is clear, transparent and alkaline in reaction. The latter is dependent upon the large amount of sodium carbonate it contains.

Its function is not definitely known. It secretes certain enzymes. Trypsin converts proteids into peptones; amyllopsin converts starch into maltose; the rennet ferment has the power of curdling milk, and steapsin has the power of emulsifying and saponifying oil and fats. In spite of these facts glycosuria, fatty stools, and intestinal indigestion are not constant in the disease of the pancreas, but are rather presumptive evidence of its disease. Pancreatic secretion is excited by introducing into the stomach an acid, preferably diluted hydrochloric. The amount of the ferments varies according to the food taken.

A physical examination of the pancreas does not afford much definite information, as it is only in cases of extreme emaciation that it is possible to palpate it. The greatest evidence of disease of the pancreas is the presence of a deep-seated tumor midway between the umbilicus and ensiform cartilage. Accompanying this condition are deep-seated pains, fatty stools, glycosuria, ascites and jaundice. There are sensations of discomfort or oppression which may be increased to actual pain.

ACUTE PANCREATITIS.

Varieties.—Hemorrhagic, suppurative and gangrenous.

HEMORRHAGIC PANCREATITIS.

Etiology.—This occurs most frequently in corpu-

lent adult males, the result of the impaction of a gall-stone in such a manner that the bile passes into the pancreatic duct. Traumatism, chronic alcoholism, chronic gastro-duodenitis, and mercurialism are found associated in some cases.

Pathology.—The organ is enlarged. The color may vary but little from the normal, but in the majority of cases it is dark-red or of a reddish black. There may be evidences of extensive hemorrhages in the fat tissue around the pancreas.

Symptoms.—These appear suddenly. There is an intense deep-seated colicky pain in the epigastrium accompanied with nausea, vomiting, constipation, abdominal distension, and indications of collapse. The temperature is often subnormal at first, while later it is above normal. A condition of collapse may precede death by a few hours. Fatty stools, albuminuria, hiccough, dyspnea, and delirium may supervene and death result in from two to four days.

Diagnosis.—This is based upon the sudden appearance, in a previously healthy person, of an agonizing pain in the epigastrium which is followed by vomiting and collapse, the appearance of a mass, and a circumscribed tenderness in the epigastrium often to the left of the median line and the presence of an early and high leukocytosis, together with constipation.

It may be mistaken for intestinal obstruction; with the latter there is fecal vomiting and the peristaltic movement of the intestines may be seen. Ulcer of the stomach and duodenum occurs in younger subjects. There is a condition of anemia or chlorosis

present with pain following the meal and hematemesis. In gall stone colic jaundice usually appears; the pain is in the right hypochondrium. Gall stones may appear in the stools.

Prognosis.—Mild cases recover, but the great majority are fatal. The inflammation may assume a gangrenous character, and death results within two to three days, or a week at the most.

Treatment.—The patient should be kept in bed. Stimulants should be employed. The diet should be nutritious, and easily assimilated, as milk, broths, and farinaceous foods. External heat and enemas of warm saline solutions are beneficial, together with hypodermics of *Atropine* or *Strychnine*. *Physiologic salt* transfusions or infusions may be given. Diffusible stimulants are of service. Surgical procedure is indicated in many of these cases.

Iris versicolor.—This remedy has a pronounced action upon the pancreas producing congestion and even rupture of the blood-vessels with an extravasation of blood into the tissue of the pancreas. There is a burning distress in the region of the gland, with the vomiting of a sweetish water; the saliva has a greasy taste; there is a green watery diarrhea, which is worse at 2 to 3 A. M., that is accompanied by an offensive flatus which has the odor of copper. The diarrhea may contain undigested fat. There is frequently a periodical headache which returns every week. There is a dull, throbbing headache usually located over the right eye. The headache is accompanied with the nausea, vomiting and dim vision.

Mercurius.—This remedy should also be studied in

these cases as well as jaborandi and its active principle pilocarpine.

Atropine sulphate 3x is often beneficial in relieving the pain; when this is not sufficient, *Codeine 1x* may be employed.

SUPPURATIVE PANCREATITIS.

Etiology.—This is similar to that of the hemorrhagic variety with the addition of the pyogenic organism.

Pathology.—The organ is enlarged, and small suppurative points appear in the substance of the organ which may in time destroy a portion or the whole of the pancreas. An abscess may rupture and the pus find its way into the peritoneal cavity.

Symptoms.—There is a severe epigastric pain, hic-cough, vomiting, irregular chills and fever, constipation, tympanites, slight icterus and enlargement of the spleen. The duration may be from a week to three or four weeks. It may become chronic and last for months with a gradual loss of strength and flesh. Leukocytosis is present. There may be a deep seated mass in the epigastrium.

Prognosis.—This is not favorable.

Treatment.—This is surgical.

GANGRENOUS PANCREATITIS.

This is usually a sequel of the hemorrhagic variety. The organ becomes necrotic.

The symptoms are obscure, but are often similar to those of the hemorrhagic form with the addition of chills and fever. The duration is from one to three

weeks. It usually terminates in death, although the necrotic portion has been known to pass by the rectum and recovery to take place.

CHRONIC PANCREATITIS.

Etiology.—The most common cause is duodenal catarrh that extends to the pancreatic duct. This may be dependent upon alcohol. Obstruction of the pancreatic duct results in fibrous atrophy of the gland.

Pathology.—The fibrous tissue is increased. The organ may be enlarged, but more frequently it is smaller than is normal. The surrounding subperitoneal tissue is thickened and indurated. There may be a fatty degeneration of the gland.

Symptoms.—There is loss of appetite, nausea, seldom vomiting, pyrosis, belching and a sense of fullness and weight associated with epigastric pain and tenderness and a progressive loss of weight and strength. These symptoms may be present for months and years before death results. Diarrhea may be present. The stools may be fatty and white, even if jaundice is not present.

The epigastric pain is dull, boring and burning in character. It appears to be deep-seated and is often paroxysmal in character. Glycosuria may be present.

Prognosis.—This is based upon the symptoms and clinical history. While patients may live for many years with chronic pancreatitis, it is a chronic condition and progressive in many cases to a fatal termination.

Treatment.—This requires the correcting of the habits. If alcohol is being partaken of, it should be

stopped. If there is a history of syphilis, treatment devoted to this should be undertaken. The digestive disturbances should be relieved as far as possible by diet devoted to this end. It should include those articles of food that demand as small an amount of pancreatic juice as possible. Pancreatin and finely minced pancreas assist in the digestion of fats. If there are indications of glycosuria, saccharine and farinaceous articles of food should be reduced as far as possible and a large amount of nitrogenous foods substituted. The presence of gastric and duodenal catarrh should be considered, and, if present, the diet should be such as is but slightly irritating. Carbonated waters are beneficial. If not contra-indicated, acid fruits are highly beneficial, as dilute acids stimulate the secretion of the pancreas.

Iodine.—This was Rademacher's great remedy in pancreatitis. He gave tablespoonful doses, every hour, of a solution consisting of thirty drops of the tincture of iodine in eight ounces of water. It causes an increased flow of saliva with a violent vomiting of a sour watery substance with a diarrhea of copious soft, watery, foamy stools. There is voracious appetite, and yet there is a gradual emaciation going on. There is a soapy taste in the mouth.

Baryta muriatica.—This remedy has a clinical history that points strongly to disease of the pancreas and in the physiological action has a decided action upon the gland. There is swelling of the salivary glands. There is profuse salivation. The food tastes bad and there is an offensive taste in the mouth. The tongue is coated. There is loss of appetite with

nausea, retching, vomiting, a profuse diarrhea and a continual pain in the upper portion of the abdomen.

Phosphorus.—This remedy is indicated when there are burning pains and a sensation of distress deep in the epigastrium. There is great thirst, with vomiting of water as soon as it becomes warm in the stomach. The stools are offensive, watery and contain fats.

Other remedies that should be studied are *Lycopodium*, *Uranium nitrate* and *Kali bichromicum*.

PANCREATIC COLIC.

(Pancreatic Calculi.)

Etiology.—This results from the passage of pancreatic calculi. It may be dependent upon a catarrhal condition of the pancreatic duct and a retention of the secretions.

Pathology.—Pancreatic stones vary in form. They are composed of the Carbonate and Phosphate of Lime. They vary in size from that of a grain of sand to that of an almond, and are usually white or grayish in color, but may be dark or black. On account of their presence, the glandular tissue is irritated so that an interstitial inflammation is established and a dilatation of the duct or carcinoma results.

Symptoms.—There are severe attacks of paroxysmal pain which centers in the region of the umbilicus. It may radiate along the lower left costal border to the back. There is salivation, nausea, vomiting and fever, but jaundice is absent. The stools are diarrheic, fatty, and may contain undigested muscle-fibre. Sugar occurs in the urine. The melituria may be but slight and intermittent at first.



Diagnosis.—This is based upon the clinical history as outlined in the symptoms, together with the finding of the pancreatic stone in the feces. They are hard and mortar-like.

Prognosis.—This is dependent upon the associated lesions and sequelæ, such as glycosuria, pancreatic cysts and chronic pancreatitis. If these are but slight and the stone is evacuated, recovery may follow.

Treatment.—This consists in the assistance of the primary digestion, the drinking of a sufficient amount of pure water, the improving of the general circulation, and of the cutaneous elimination by means of hygienic methods. *Pilocarpine*, 1cc. of a one per cent. solution hypodermatically, has an influence in relieving the pain. Surgical procedure is necessary in severe cases.

PANCREATIC HEMORRHAGE.

(Pancreatic Apoplexy.)

This may be dependent upon a dilation of the right heart and the resulting venous stasis forming apoplectic cysts. In these cases there is usually degeneration of the pancreas. It may be dependent upon traumatism and arterial sclerosis.

The hemorrhage may be large or small. It may occur into the interlobular tissue, into the subperitoneal tissue, or into the mesentery or retroperitoneal fat. The splenic artery may be sclerosed.

Symptoms and Diagnosis.—These develop suddenly while the patient appears to be in good health, and often terminates life in a short time. They appear without any known cause apart from trauma. There

is a severe pain which is localized above the umbilicus. This increases in severity and may intermit. The pain is accompanied by nausea, obstinate vomiting and a strong desire to defecate. The patient is restless and anxious and collapse soon follows. The extremities are cold. The pulse is rapid, weak and soon becomes imperceptible. There is tenderness of the upper portion of the abdomen, which may be tympanitic. The temperature becomes subnormal. The bowels are constipated. It is frequently impossible to make a diagnosis. The condition should be distinguished if possible from the perforation of gastric ulcer, from intestinal obstruction and from rupture of an aortic aneurism.

Prognosis.—This is often grave. If the hemorrhage is small, recovery may take place. Death may occur in a short time from shock if the hemorrhage is large.

Treatment.—These cases demand rest, the local application of cold and the use of stimulants.

PANCREATIC CYSTS.

Etiology.—This may be congenital, traumatic, inflammatory, or infectious in origin. It may be dependent upon the impaction of a calculi in the pancreatic duct, or of an intestinal parasite, passing into the ducts, or a contraction of a small duct due to chronic interstitial pancreatitis.

Pathology.—It may be single or multiple and may arise from any part of the organ. It has been known to contain ten to fifteen pints of the fluid which emulsifies fats, saccharifies starch and digests

albumin and fibrin. As the cyst increases in size the gland becomes atrophied. The surrounding viscera are displaced by the cyst, which may develop in the lesser peritoneum and displace the stomach upwards. If it develops in the transverse meso-colon it is below the transverse colon. It may rupture into the lesser peritoneal sac, into the greater peritoneal cavity or into the stomach.

Symptoms.—The early symptoms are those of a disturbance of the digestion and colicky pain that may simulate gall stones. The tumor, if large and near the surface, fluctuates. It is a spheroid, elastic body, dull upon percussion and is separated from the liver dulness by a zone of resonance. If the stomach and colon are inflated the tumor will be found to be present between them, either to the left or right of the median line according as it springs from the tail or head of the pancreas. There may be attacks of colicky pain with nausea and vomiting. Glycosuria and albuminuria are not uncommon. There is more or less emaciation. Intestinal hemorrhages may occur. Late in the history of the case there is a sensation of pressure in the epigastrium and the presence of a tumor in the region mentioned. Aspiration will reveal the fluid with its characteristic reaction, etc. It should be differentiated from hydronephrosis, which is favored by a history of lithiasis, pyelitis, peritonitis or a movable kidney.

An ovarian cyst develops from the lower portion of the abdomen, while this appears in the upper portion. An aortic aneurism has an expansile movement and appears more suddenly and has not the sal-

ivary nor the melituristic symptoms. An enlarged gall bladder is to the right and is attended with more or less hepatic symptoms.

Prognosis.—Pancreatic cysts may persist for many years without producing any great inconvenience. Large cysts may interfere with the respiration, the circulation, the digestion and the passage of food through the intestines, and they may rupture. Diabetes may result from its presence.

Treatment.—Small cysts may demand no treatment. The largest ones require surgical interference, either drainage or removal. The fistula established by drainage often remains for months.

MORBID GROWTHS OF THE PANCREAS.

Of these carcinoma is the most common, while sarcoma, adenoma and lymphoma are occasionally met with.

The carcinoma is nearly always secondary. It seldom occurs before the fortieth year of age. When primary it nearly always involves the head of the organ. The growth may obstruct the duodenum, colon or pyloric extremity of the stomach.

Symptoms.—The usual cancerous cachexia, emaciation, weakness and pain in the region of the growth are present. The parts are tender to pressure. The stools frequently contain fat and muscular fibres and there is glycosuria. In certain cases jaundice and deranged digestion are present.

Diagnosis.—It is seldom that a positive diagnosis can be made. A marked cachexia, progressive emaciation, intense and often continuous pain in the re-

gion of the pancreas, a palpable, sensitive tumor in a subject past the meridian of life are all significant. In connection with these, the presence of jaundice and indications of the loss of the pancreatic function render the diagnosis more positive.

In cancer of the pylorus the tumor is more superficial and is freely movable. There are more gastric symptoms and the stomach is dilated; there is a "coffee ground" vomitus, and lactic acid is present in the gastric contents, while hydrochloric acid is absent. The bowels are often constipated. The stools are dark and the urine contains sugar.

In cancer of the pancreas, the tumor is deep and adherent. There are symptoms of chronic dyspepsia; the vomiting of bilious material, hydrochloric acid is present while lactic acid is absent. The stools contain undigested muscle fibres and the urine contains sugar.

In cancer of the pylorus the tumor is superficial and freely movable and there is a decrease of the hydrochloric acid reaction in the stomach contents. In cancer of the pancreas, the tumor is deep and adherent and there are often indications of compression of the portal vein, ascites and swelling of the spleen.

Cancer of the transverse colon is more superficial, is easily displaced, changes its location and causes tympanites in the ascending colon. Both conditions may produce bloody stools.

Prognosis.—The duration of life in a case of cancer of the pancreas varies from a few weeks to a year or longer. The slower developing growths take longer. Surgical procedure has been of service here.

THE THYROID BODIES.

These are glandular bodies found in all vertebrates. In the mamalia they occupy a place on each side of the trachea close to its junction with the larynx. They are united in man by an isthmus. Their structure is distinctly glandular and belong to the class known as the ductless glands. They are composed of a number of closed vesicles lined with a single layer of cuboidal epithelium, and filled with a glairy liquid known as the colloid substance.

The parathyroids are four small bodies, two on each side, which lie laterally and posteriorly to the thyroids. They are not always in pairs. They consist of masses or columns of epithelial-like cells. Histologically they resemble the anterior lobes of the pituitary body.

The accessory thyroid bodies possess the same structure and are supposed to have the same function as the thyroids. They are supposed to prevent a fatal termination following the removal of the thyroids. They are situated upon the sides of the neck and may extend down as far as the heart.

FUNCTIONS OF THE THYROIDS AND PARATHYROID BODIES.

The complete destruction or removal of these struc-

tures is followed by all the symptoms which attend myxedema. There is pronounced anemia and cachexia, muscular tremor, which may pass into spasms and even convulsions. There is a diminution of the muscular strength, abnormal dryness of the skin, with loss of the hair, failure of the mental power and a swelling of the connective tissue.

Whether the internal secretion of these organs acts by antagonizing toxic substances developed in the body or by its direct influence upon the body-metabolism is not definitely determined.

Two active principles have been isolated ; the one, iodothyryn, contains a large percentage of iodine. It preserves in a large measure the beneficial influence of the thyroid extract, and exerts an influence in the disturbed metabolism and the toxemia which occurs in cases of hypothyroidism. The second is thyro-antitoxin, which prevents the convulsive disturbances.

GOITER.

Synonyms.—Struma, Bronchocele.

Definition.—This is a term applied to various enlargements of the thyroid gland.

Etiology.—It occurs epidemically in certain localities, endemically in nearly every country and sporadically in all parts of the world. The local conditions which act as predisposing causes are not fully determined. It has been attributed to the drinking of water impregnated with the magnesium and calcium salts, to heredity and to certain bacterial or toxic agents.

Pathology.—The tumor may be vascular, cystic, or

parenchymatous with colloid degeneration. In the vascular form, the blood-vessels within the gland are dilated. In other cases, there are cystic changes due to the influence of the dilated acini of the glands. The contents of such cysts consist of colloid material with more or less serous and hemorrhagic liquid. In the parenchymatous variety the glandular tissue undergoes more or less hyperplasia. The gland is usually uniformly enlarged, but may be irregular. The structure is somewhat elastic and may be very firm. Usually the acini contains but a small amount of colloid material, in other cases they are distended with material, then the term colloid goiter is applied.

Symptoms.—The whole gland, or any portion of it, may be enlarged. Early in the case the enlargement may be the only thing to complain of and later, as the tumor increases in size, pressure symptoms appear which vary according to the part involved and consist of pain, dyspnea, aphonia from paralysis of one or both vocal cords, or sudden death may result from pressure upon vagus.

Diagnosis.—This is based upon the presence of an enlargement of the thyroid, its vertical movement during deglutition, and the clinical history of the case.

SIMPLE GOITER.

- (1) There is no bruit heard over the gland.
- (2) There is no increased rapidity, or palpitation of the heart.
- (3) There is no protrusion of the eye-balls.
- (4) There is no flushing of the face or hematuria present.

EXOPHTHALMIC GOITER.

- (1) There is a bruit heard over the gland.
- (2) There is an increased rapidity of the heart and palpitation sooner or later.
- (3) Sooner or later the eyes protrude.
- (4) There is flushing of the face and hematuria.

Goiter should be differentiated from lymphomata of the cervical glands, lymphosarcoma and an enlargement of the glands with Hodgkins's disease.

Prognosis.—It is seldom a cause of death, but its course is a chronic one. The size of the tumor and the disturbance resulting from its presence must be considered. In the young subject, it may disappear without treatment if there is no degeneration, puberty being the age at which the disturbance is liable to arise.

Treatment.—The removal of the patient from the goitrous region may be of some service. Those residing in such regions should boil their drinking water or drink rain water. If there is a disposition to goiter the patient should abstain from any form of exercise that produces hyperemia of the neck. A residence at the seashore may be curative during its early stages.

Electricity has a beneficial effect in many cases. It may be employed as electrolysis or cataphoresis. In these cases the parts should be thoroughly cleansed and anesthetized by the use of cocaine. A large positive electrode is placed over an adjoining part, while a needle attached to the negative pole is inserted into the tumor till insulation is beneath the skin, after which a galvanic current of from five to ten milliamperes is used. The operation should be repeated in from five to seven days. A new location should be selected for each treatment. In other cases a current of ten to fifteen milliamperes is passed through the tumor, the negative pole being applied over the tumor.

Cystic goiters may be relieved by drawing off the

fluid and washing out the cavity with dilute iodine, or injecting into it an emulsion of iodoform and glycerine (1 to 7), of this mixture ten to fifteen drops should be injected every four to six days.

In the parenchymatous variety, the fresh thyroid gland of sheep chopped up and spread upon bread is of service. Or ten grains of fresh extract of the gland may be given once or twice a week. The dose is reduced for children. (Twenty to thirty minims of a five per cent. watery solution of carbolic acid may be injected deep into the gland every second to fourth day. It must be continued for eight to ten weeks. This is followed by some pain and dizziness which rapidly disappears.) The needle should be inserted well into the gland, being careful not to puncture the anterior jugular vein, and the fluid injected slowly.

An ointment consisting of 2 to 10 per cent. biniodide of mercury is used; of this a small amount is rubbed over the goitre and the parts exposed to the sun for two hours if possible, that absorption may result. This process may be repeated every two to four days until the skin shows signs of irritation.

Iodine is employed locally, but more benefit will result from the ointment, or its administration internally. *Spongia tosta* which contains iodine is frequently of service. The lower trituration of the burnt sponge is efficacious. It is also employed in a combination of the eggshell, under the title of Gunther's Goiter Remedy.

Calcareo carbonica is of service when the constitutional characteristics of the remedy is present with the malnutrition and the glandular involvement.

Phytolacca is of service in the nodular variety. It may be applied in the form of an ointment of ten to forty per cent. strength. There are shooting, lancinating pains which are worse at night and during damp weather.

Other remedies that should be studied are *Kali hydriodicum*, *Fluoric acid*, *Hepar sulphur* and *Pulsatilla*, *Badiaga*, *Baryta carbonica*, *Lycopus Virginica* and *Fucus vesiculosus*.

When there is evidence of degeneration of the gland, surgical treatment should be instituted.

MYXEDEMA.

Synonyms.—Athyria, Gull's Disease.

Definition.—This is a constitutional affection characterized by a myxomatous condition of the subcutaneous associated with a general cachexia, atrophy of the thyroid gland, a tendency to hemorrhages, a disturbance of the nervous system and mental impairment.

Varieties.—Adult myxedema; Operative myxedema.

Etiology.—This is dependent upon a loss or arrest of the function of the thyroid gland. It is observed more frequently in women than in men. (6 to 1). It occurs more frequently in married women who have borne children than in those who have not, and is oftenest seen between the ages of thirty-five and fifty years.

Heredity appears to have but little influence, although the disease is frequently encountered in families in which exophthalmic goiter exists. An

acute infectious disease may appear as the cause of its onset. It has followed severe hemorrhages.

Operative myxedema is dependent upon the removal of a part, or the whole of the thyroid gland.

Pathology.—The most apparent change is an increase of the connective tissue, which results in a progressive atrophy of the glandular elements of the thyroid and a corresponding suspension of its function. The capsule of the gland is involved in the fibroid change, and is tense and thicker than normal. There is a mucoid degeneration and a deposit of mucin is found in all the organs of patients who have died of the disease. These latter changes, together with the endarteritis, must be looked upon as secondary changes.

Symptoms.—The initial symptoms consist of great lassitude and debility, and duties that have been a pleasure now become a burden. The surface of the body has an appearance of rapid growth. There is a firm, inelastic swelling of the skin, which is dry and rough and does not pit upon pressure. The swelling tends to obliterate the facial lines of expression. There is marked enlargement of the arms and legs. The hands become "spade shaped," the fingers clubbed and the nails are brittle and distorted. The features become coarse and broad, the lips are thick, and the nostrils are broad and thick. The teeth become carious and fall out. The memory is defective, both thought and action are slower than normal. Headache is complained of. The patient becomes irritable and may be subject to delusions, hallucination, and finally to dementia. The body-temper-

ature is lowered. Hemorrhages may occur and the urine may contain some sugar. The bowels are obstinately constipated. There may be a great increase of mucin and of adipose tissue. The thyroid is atrophied or diminished in size, consisting of little more than a small fibroid mass.

Diagnosis.—This is based upon the clinical history, the cachexia, and the nervous disturbance as outlined under the head of symptoms.

MYXEDEMA.**SCLERODERMA.**

The differential diagnosis of these conditions is often difficult.

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| (1) The skin is inelastic and doughy. | (1) The skin is brawny and indurated. |
| (2) The thyroid gland is atrophied and mental conditions are impaired. | (2) These are not impaired. |
| (3) There is a mucoid deposit of degeneration. | (3) There is a hyperplasia of the connective tissue. |

MYXEDEMA.**OBESITY.**

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| (1) Mental and trophic changes are pronounced. | (1) Not so pronounced. |
| (2) Thyroid gland is atrophied. | (2) Not atrophied. |
| (3) It yields a brawny feeling. | (3) Yields a worm-like feeling. |

Prognosis.—If untreated this is unfavorable, and while the case may last for years, death is ultimately due to inanition, bulbar affection, or cerebral hemorrhage. An intercurrent disease as tuberculosis may be the cause of death.

In young subjects when the disease is recognized early and the thyroid treatment is commenced early, the prognosis is favorable. In cases of long duration, and in those of advanced years, not much should be expected, and although the swelling may diminish, they often sink into a fatal weakness.

Treatment.—These patients should be protected from the cold and if possible reside in a warm climate. The diet and hygienic surroundings should be regulated. Warm baths are beneficial.

The internal administration of the thyroid gland affords the most positive results. It has no special effect upon the disease, but simply supplies a principle in which the body is deficient. It may be given raw, or cooked; in the form of a glycerin extract, or as a powder extract, the latter may be prepared in tablet form; if cooked it should be underdone and from one-fourth to one-half of the gland should be used. Ten to fifteen minims of the glycerin extract may be given hypodermically three or four times a week.

In commencing this treatment, minute doses of the powdered gland or one grain of the extract should be employed three times a day, and these gradually increased to ten or fifteen grains, as there is a variation in functional activity of the glands employed, and as a result, symptoms of hyperthyroidization may be obtained earlier. This is indicated by tachycardia, syncope, vertigo, headache, pain in the renal region and vomiting. When the limit of improvement has been reached, the treatment may be discontinued for a time till the patient complains of a sensation of coldness, when it should be resumed with moderate doses and gradually increased. Improvement is indicated by increased warmth of the body, loss of weight, and improved mental condition and a more normal pulse and temperature.

The remedies that have exerted a beneficial influ-

ence are *Ferrum arsenicum*, *Glonoin* and *Pilocarpine*.

Operative myxedema results from an extirpation of the thyroid. The results are identical to that of true myxedema. It does not occur when but a portion of the gland is removed nor when the accessory thyroid remains. The management of these cases consists in the employment of the thyroid extract throughout life, with short intervals when the treatment is withdrawn until the improvement lags.

INCOMPLETE MYXEDEMA.

Between the normal condition of the thyroid gland in the adult and its complete loss of function there are innumerable degrees of varying symptoms and clinical pictures that appear just in proportion to this loss of function.

Prominent in this syndrome is premature senility in which the patient appears old for her age. She becomes gray early. This may be localized or general; or the hair may fall out early. It feels coarse, is brittle and dry. The skin becomes yellow, shriveled, dry and there is an excess of dandruff. The eyebrows and lashes become thin and may be absent. The teeth generally decay or are covered with a black or green tartar. The gums are soft, inflamed and bleed easily. The tongue is enlarged and takes the imprint of the teeth. The tonsils are hypertrophied, adenoids are often present. Headaches that simulate cerebral anemia are often present and are referred to the frontal sinus or to the occipital region. They may simulate migraine and in contradistinction to the latter are worse during the morning and disap

pear as the day wears on, or after a full meal. The thickening of the skin is not a prominent symptom in many cases. There may be hallucinations of the sight and hearing and buzzing and ringing in the ears.

Rachalgia is often present. The joints and muscles are painful and may simulate rheumatism. Dyspnea is present. Various forms of varicosities are observed and hepatic congestion often results. The bowels are obstinately constipated. Amenorrhea is the rule. The patient complains of fatigue and languor. The urine may contain albumin and casts while the urea is below par. Insanity and melancholia may be present.

Diagnosis.—This is reached only by the most careful analysis of the symptomatic picture, and often only by exclusion of other simulating diseases.

Prognosis.—This is rendered more favorable since the recognition of the cause and the employment of the thyroid extract.

Treatment.—This consists in the administration of the thyroid extract and the management of a case of myxedema.

SPORADIC CRETINISM.

Synonyms.—Myxedema of childhood, congenital myxedema. Myxedematous idiocy.

Definition.—This disease is dependent upon a congenital absence or an arrest of the function of the thyroid gland and is characterized by an imperfect development of both the body and intellect.

Etiology.—The cause of this disease is not known.

It has been attributed to consanguinity, alcoholism, tubercular, and syphilitic infections. Mental shock and worry on the part of the mother during pregnancy has been considered the cause in a few cases, while there has been a family history of deformity in other cases. Endemic cretinism occurs in localities where goiter is endemic and in these localities 75 per cent. of these cretins are goitrous.

Pathology.—In some cases the thyroid gland is absent or atrophied, in other cases it is goitrous, but in all cases it is diseased. The brain is smaller than normal, while the intraventricular and subarachnoid fluid is increased. The long bones, with the exception of the clavicle, are shortened. The cranial bones are thickened and the diploe is diminished. The blood is low in hemoglobin, while the arterial blood is of a venous hue as a result of the reduced quantity of oxygen.

Symptoms.—There is seldom anything abnormal to such an extent as to be recognizable before the sixth month of life. The development of the mind and body now appears to be retarded. The face is pale, yellow and swollen. The nose is broad and flat. The eyelids are puffy and appear as slits in the skin through which the toad-like eyes are visible. The teeth do not appear with any regularity and soon decay. The fontanelles do not close. The head is large and flat, the whole face is broad, the forehead is low, the eyes are wide apart, the mouth remains partially open, and the tongue hangs partially out of the mouth. The hands and feet, as well as the limbs, are short and stumpy. The skin is dry and the hair

is thin. Premature ossification of the occipito-sphenoidal suture may take place. The whole aspect is one of age.

Diagnosis.—This is based upon the condition of the thyroid, the skin, the hair and teeth, together with a lack of physical development. It should be distinguished from idiocy unassociated with thyroid affections and from rickets.

Prognosis.—With the increased knowledge of the etiology and treatment many of these recover and yet treatment may be required throughout life. The earlier in life the treatment is instituted, the better the result.

Treatment.—The patient should be placed under favorable hygienic surroundings and the diet regulated. The solid extract of the thyroid gland should be administered, either in the tablet or in the powder form. One to two grains should be given in broken doses during the day. The dose should be gradually increased till the full effect is obtained. There may be no change of any importance noticed during the first week. The first thing noticed is a decrease in the bulk and body-weight with increased diaphoresis and a more natural movement of the body. The mental condition improves as well as the skin and hands. The hemoglobin is increased, the general nutrition is improved. As the proportion between the weight and the height becomes more nearly normal, the extract should be gradually diminished till the smallest quantity that will maintain the health of the individual is being taken. The bodily development is often rapid under this treatment.

The mental condition usually improves rapidly. Should the agent be continued in large doses for a prolonged period, symptoms resembling Graves' Disease will ensue. In a few cases it has not improved.

The internal administration of *Calcarea phosphorica*, *Baryta carbonica* and kindred remedies should be continued over a prolonged period.

THYROIDITIS.

Definition.—This is an acute inflammation of the thyroid gland.

Etiology.—It may be the result of traumatism, but is more frequently secondary to one of the infectious diseases.

Pathology.—The gland is swollen and hemorrhages, thrombosis and abscess may develop.

Symptoms.—There is pain, fever, swelling that may terminate in suppuration. If venous obstruction takes place, vertigo, headache, cyanosis and epistaxis results. Death may result from the pressure upon the trachea.

Diagnosis.—This is based upon the clinical history, the local and general symptoms. It should be distinguished from laryngeal perichondritis which is higher and more central than thyroiditis.

Prognosis.—This is usually favorable. If pus is present it should be evacuated. Degeneration and sclerosis of the gland tissue may result.

Treatment.—It demands local applications, the administration of an internal remedy that will allay the inflammation, and the early evacuation of pus if it forms.

Abscess of the thyroid is not common. It demands the same form of treatment as abscess elsewhere. The thyroid may be the seat of new growths, adenomata, carcinomata, sarcomata being the forms most frequently met with.

INFANTILISM.

Definition.—This is an anomaly of development in which there is, even after puberty, a persistence of the morphological characteristics of childhood.

Etiology.— This is the result of a deficient secretion from the thyroid gland; a partial sclerosis of the gland dependent upon hereditary syphilis or tuberculosis is the cause in some cases, but more frequently the sclerosis is the result of some acute disease of childhood that has been of such an extent that the gland has been incapacitated to such an extent that its secreting power no longer meets the need of the system.

Symptoms.—These are the symptoms of cretinism in a diminished form that vary according to the period of life at which they appear and the amount of the gland destroyed. The patient appears older than his age would indicate, is short of stature, stout and heavy. The face is round, full, greasy and presents a stupid surly appearance. The skin of the face and scalp is thickened. The nose is broad, the mouth is large, the eyes are wide apart, and the mucous membranes are turgid. The condition of the mucous membranes is apt to cause mouth-breathing and produce peculiar harsh nasal intonations. The hair is coarse and the tongue may be swollen. The neck is short and thick. The hands thick and of a bluish

tinge due to a distended condition of the veins. The feet present much the same characteristics. The skin is dry and harsh. The generative organs remain infantile in the female. Menstruation is delayed and when established is scant, irregular and painful. The non-development of the sexual organs is one of the most constant symptoms. The X-ray will reveal a persistence of the epiphyseal cartilages if the disease has commenced early in life.

In some cases the mentality does not appear to be much impaired, while in other cases he is dull and can only be taught to read and write with difficulty. In the best of these cases there is an arrest of development in ideas and in the mode of thought. They are childlike in manners and continue to take interest in the affairs of those who are much their juniors.

Other organs besides the thyroid may be implicated in the production of infantilism, especially mitral stenosis or insufficiency; derangement of the liver or pancreas, defective development and imperfect function of the ovaries and testicles, also assist in the production of this condition.

Albuminuria and rachitis may be associated with thyroid insufficiency, while lesions of the heart, liver, pancreas appear secondary as a result of a want of nutrition.

Diagnosis.—This is based upon the clinical history and the symptoms as outlined.

This disease is often mistaken for rickets. The head and trunk are large, the limbs are short. The head is round, while the frontal and parietal bones are prominent. The face is large and the features are gross.

Anangioplasia or a congenital narrowing of the lumen of the large arteries should not be mistaken for the type of infantilism just described.

Ateleiosis is a term applied to a disease in which the subject does not arrive at perfection. It begins suddenly without any apparent cause, there is the retention of an unimpaired intelligence and a marked delay in the development of the sexual system.

Achondroplasia is a form of arrested development that simulates myxedematous infantilism in many particulars.

Prognosis.—These cases often can be benefited by the use of the thyroid, while others can be permanently improved by constitutional treatment.

THE ADRENAL BODIES.

These are also known as the suprarenal capsules. They are two triangular or semilunar, flattened, ductless glands, situated behind the peritoneum anteriorly to the upper portion of each kidney. They are enclosed in a thin fibrous capsule, which is adherent and sends partitions inwards. There is a cortical portion which contains groups of finely granular polyhedral cells. Between these cells and the fibrous portion are channels believed to be lymph-channels. There is also a medullary portion which is composed of connective tissue bundles. Between these are coarse granular and branched cells.

The histology and function of these bodies is not definitely determined. Their complete removal is followed by death in all animals in from a few hours to two or three days. Preceding death there is a diminution in the vascular tone, muscular weakness and pronounced prostration. Their internal secretion is believed to have a definite action upon the circulatory system, slowing the heart beat and causing a rise of blood pressure when the vagi are intact, but when the action of the vagus is interfered with, either by section or atropine, then the heart rate is accelerated and the blood pressure is increased. It is also believed to possess the property of destroying or

of neutralizing certain poisons, especially muscular poisons. The action of this secretion is decidedly transitory. The substance is present in perceptible quantities in the blood of the renal veins and its amount is increased by stimulation of the splanchnic nerves. The substance that produced the decided effects upon the heart rate and the blood pressure has been isolated and is widely used. It is described as an unstable basic body. The suprarenal extract has been employed therapeutically in diabetes insipidus, in cardiac weakness, neurasthenia, hemorrhages and for complaints occurring during the menopause.

ADDISON'S DISEASE.

Definition.—This is a constitutional disease, characterized by a gradual loss of strength without a corresponding loss of flesh, gastric distress with occasional vomiting, and enfeebled circulation, a bronzing of the skin, and a functional or organic derangement of the suprarenal bodies.

Etiology.—There is some doubt regarding the etiology of this disease. It has been observed in persons of all ages, but more frequently in males than females; and among the laboring classes and those who are subject to injuries of the back, and across the loins. In eighty per cent. of the cases it is associated with tuberculosis of the suprarenal capsules. In other cases there is a chronic interstitial inflammation, tumors, atrophy or cysts of the capsules. In certain cases no lesion of the capsules can be demonstrated; in some of these there is a lesion of the abdominal sympathetic nervous system which supplies these

bodies. Malaria has been considered as a possible cause.

Pathology.—When the changes are due to tuberculosis they are such as are found with tubercular lesions in other organs. In some cases the adrenals show atrophy, fatty or sclerotic changes. It is held by some that the symptoms are dependent upon a disturbance of the abdominal sympathetic nerves, while others claim it is dependent upon an insufficient secretion of the suprarenal bodies. It is probable that a destruction of the bodies, an interference with their function or that of the sympathetic nerves of the part are all that is necessary to produce the group of symptoms.

Symptoms.—These appear slowly; usually the first symptom complained of is a gradual failing of the strength, which may have been noticed appearing gradually for weeks or months. At about the same time or shortly after, the heart's action becomes feeble, while the pulse is frequent, small and easily compressible. This weakness of the circulatory system may be so pronounced that syncope results, and death may follow sudden exertion, as a sudden sitting up in bed.

Owing to the defective circulation through the lungs, dyspnea results. The alimentary tract is affected and as a result there is imperfect digestion and irregularity of the bowels.

Pigmentation of the skin and mucous membrane, while not a constant symptom, is usually present. It is first observed upon those parts that are exposed as the face, neck, back of the hands, and is most pro-

nounced upon those parts that are normally pigmented, and appear as a diffused darkening of the skin. At times, it is in patches or streaks and varies in intensity with the remissions and exacerbation of the disease. The color varies from a light yellowish or greenish-brown, to a dark, brownish or black tint. It is of a deeper hue upon those that are subject to irritation and pressure, except the palms of the hands, and soles of the feet, which are not so deeply pigmented. There may be patches of leukoderma seen in some cases, where pigment has wholly disappeared. The mucous surfaces show a similar pigmentation to the skin.

The symptoms of the alimentary canal are in the form of anorexia, nausea, vomiting, diarrhea or constipation. The nausea and vomiting may be early symptoms, but vomiting is nearly always present during the later stages of the disease when it is often uncontrollable and causes death as a result of exhaustion. The bowels may be constipated or a condition of alternate diarrhea and constipation may be present.

The memory is usually impaired. Headache and vertigo are common, and pain is usually complained of. It may be in the joints, or in the loins, and when in the loins, is of a dragging character. The pain in the loins may simulate rheumatism, but there is no indication of active inflammation about the joints. There is often an intense epigastric pain which may radiate to the hypochondrium. The temperature is often subnormal, but there may be a slight rise during the later stages of the disease. The subcutaneous fat is usually normal.

The course of the disease is usually marked by periods of exacerbations and remissions, but there is a tendency to a fatal termination.

The duration of the disease is from a few weeks to seven to ten years, the pigmented cases being of a much longer duration. Death is due to either asthenia, exhaustion, the result of vomiting, syncope, or cardiac failure from exertion. The mind may be clear to the end, or coma, delirium or convulsions may develop.

Diagnosis.—In the well marked cases there can be no doubt that pigmentation of the skin and mucous membrane, the asthenia, loss of cardiac and vascular strength, and gastric disturbances are characteristic.

In the early stage of the disease and in cases where the symptoms are not well marked, it is only by exclusion that a diagnosis can be arrived at.

It should be differentiated from chronic pulmonary tuberculosis, tubercular or cancerous peritonitis, melano-sarcoma, disease of the pancreas, vagabond's disease, malarial, cachexia and pregnancy.

Prognosis.—This is unfavorable, but depends upon the amount of destruction that has taken place in the suprarenal capsules, and whether the disease can be arrested. Those cases in which there is but slight or no bronzing often run a most rapid course.

Treatment.—This is not satisfactory. The strength of the patient should be maintained. The diet should be one that is nutritious and easily digested. Should the asthenia be pronounced and the patient confined to bed, stimulants may be demanded, as syncope may result. Constipation, if present, should be corrected

by means that are not debilitating, while if diarrhea is present, it should be controlled. If vomiting becomes distressing, it may be necessary to give small pieces of ice in the mouth, and Vichy and Apollinaris water may be used. In these cases the diet should consist of milk and lime water or Vichy half and half, pancreatized or peptonized milk. These should be taken in small quantities at frequent intervals.

The administration of suprarenal capsule has been but partially successful. It may be given raw, partially cooked, or in a glycerine extract; a one grain tablet may be given three times a day.

Arsenicum album.—This remedy has been used. It produces a pigmentation of the skin and a gastrointestinal irritability.

Argentum nitricum.—This has been employed to lessen the distress and suffering.

Arsenicum iodatum, *Baryta iodide*, *Calcium iodide*, *Iodine*, *Tuberculinum* should be studied in cases presenting evidences of a tubercular origin.

Cases of arrested development of these bodies and their absence in certain cases has been demonstrated in those otherwise healthy. Hypertrophy and atrophy have also been recognized.

They may undergo a degeneration, either fatty, hyaline, or amyloid in character; circulatory disturbances, either in the form of a passive congestion, an active hyperemia or an anemia, may result. Hemorrhages into the suprarenal glands may occur, while thrombosis and embolism have been observed. They are inflamed at times and show the changes that are incident to syphilis and tuberculosis.

Benign tumors, adenomata, fibromata and lipomata are found here, while malignant growths as carcinoma of a secondary character, as well as primary carcinoma and sarcoma may occur.

THE THYMUS.

This is a temporary organ situated in the superior and anterior mediastinal spaces. It lies between the lungs and anterior to the heart and as a rule extends downward as far as the level of the fourth costal cartilage anterior to the great vessels and trachea. It extends upward nearly to the thyroid.

It consists of a right and left lateral lobe. These are independent of one another, being separated by an intervening fissure. Each has a delicate enveloping fibrous membrane, which sends in processes forming trabecules. These divide the gland into lobules, each lobule being composed of separate follicles with a delicate connective tissue separating them. The gland is of pinkish or reddish gray color. It appears about the second month of intra-uterine life and attains its greatest development toward the end of the second year. It begins to diminish in size after the second year and at the fifteenth year it has nearly disappeared.

Its function is not definitely known, but it is believed by some to be one of the parent sources of the blood corpuscles.

PERSISTENT THYMUS.

While this gland is normally present only during

early life, it may persist, and has been found as large as normal at forty. It may be associated with exophthalmic goiter, and may be the starting point of malignant and benign growths or the seat of syphilitic or tubercular exhibitions.

HYPERTROPHY AND ENLARGED THYMUS.

This occurs during childhood and adult life and may be the cause of urgent symptoms. The enlargement may exist alone or be associated with leukocythemia, lymphadenoma or exophthalmic goiter.

The symptoms are those of pressure. There is dyspnea, cough, laryngismus stridulus, thymus asthma, spasms of the glottis and fulness of the veins of the neck. There may be cardiac disturbance and dilatation. Careful percussion may demonstrate an increased area of dulness along the left sternal border from the second to the fourth ribs.

It is claimed by some that atrophy of this gland always attends infantile atrophy.

Hypertrophy of the thymus may be a cause of death, either suddenly by pressure upon the heart, or slowly by asphyxiation due to pressure upon the trachea.

Treatment.—There is but little definitely known of the management of these cases. Extract of the thymus gland has been administered in some cases, but with doubtful results.

In the sudden convulsive form, treatment is of no avail, as death results before there is time to accomplish anything. In the slow or asphyxiative form, medical treatment is of no service. Neither intuba-

tion nor tracheotomy reach low enough to afford relief and the only treatment that has been of any service has been the opening of the anterior mediastinum and the suturing of the gland to the substernal fascia.

PITUITARY BODY.

This is a glandular body about the size of a cherry, lodged in the sella turcica of the sphenoid bone, where it is firmly held by the dura mater. It is composed of two portions, which differ both in origin and histology. The posterior and smaller lobe is a process from the wall of the third ventricle and consists of fibrous and nervous tissue. At first it is hollow and communicates with the ventricle, but later the cavity is closed.

Two substances have been demonstrated in this portion of the gland. The one known as the pressor principle is the more active of the two, and, when administered hypodermatically, it stimulates the heart, constricts the arteries, raises the blood pressure, slows the pulse, and increases the quantity of the urine. The other, known as the depressor causes a fall in the blood pressure, etc.

The anterior lobe, known as the hypophysis cerebri, is derived from the epithelium of the oral cavity and resembles the thyroid body in structure. Passing through it is a canal connecting with the infundibulum, and lined with flattened or ciliated epithelial cells.

The function of the gland is not established. Its removal has caused death, preceded by symptoms re-

sembling those following some cases of thyroidec-tomy. Disease of the pituitary body has been found constantly associated with acromegaly. It has been suggested that the organ provides an internal secretion of importance in the growth and nutrition of bone.

ACROMEGALY.

Synonyms.—Megalacria, pachyacria, Marie's disease.

Definition.—This disease is characterized by a progressive enlargement of the osseous structures, especially those of the face, extremities and thorax, and a dorso-cervical kyphosis.

Etiology.—The exciting cause is unknown. It is constantly associated with an interference with the function of the pituitary body. Heredity may have a slight influence. It occurs about equally in the sexes, affects all races, and although seen in the extremes of life, is most frequently observed in those from fifteen to forty years of age.

Pathology.—The bones of the affected parts are enlarged, due to a hyperplasia of the spongy portion. There is an abnormal retention of nitrogen, phosphorus and calcium. The peripheral vessels of the diseased portions are larger than normal. The pituitary body is enlarged. The thymus gland persists, the thyroid often shows degeneration, while the sexual organs are atrophied or hypertrophied.

Symptoms.—There is a gradual enlargement of the head, feet and hands. The subject complains of general weakness, headache and malaise. Slight pains

which simulate rheumatism, together with anemia, polyuria and a dryness of the skin, are present. Menstruation ceases in the female, while the sexual power is lost in the male. The lips, tongue and nose are hypertrophied. The face assumes an ovoid form. The inferior maxilla is greatly increased in size. The teeth are widely separated. The speech is low, guttural and embarrassed. Hemianopsia may be present due to pressure upon the optic tract by the enlarged pituitary body. The sternum is enlarged and bulges. The skin is often pigmented, the hair is coarse and dry. The muscular system is at first hypertrophied, but later there is atrophy. Perspiration may be excessive.

Diagnosis.—This is based upon the abnormally increased growth of the hands, feet and parts of the face, together with the clinical symptoms.

Differential Diagnosis.

ACROMEGALY.

- (1) Extends to wrists and ankles.
- (2) The soft parts and bones uniformly affected.
- (3) Cervical kyphosis present.
- (4) Indication of disease of pituitary body.

ACROMEGALY.

- (1) Both bones and soft parts affected.
- (2) Brown pigmentation of skin, hair coarse, fingers sausage-shaped.
- (3) Appears in early life, about equally among sexes.
- (4) Not modified by administration of thyroid extract.

ARTHROPATHIC HYPERTROPHY

- (1) The terminal phalanges are principally affected.
- (2) Soft parts affected only secondarily.
- (3) No cervical kyphosis.
- (4) Indication of pulmonary disease.

MYXEDEMA.

- (1) Bones not involved.
- (2) Skin pale and shiny, hair falls out, fingers clubbed.
- (3) Appears late, more in females.
- (4) Modified by thyroid extract.

Occasionally megalocephaly, gigantism and chiro-megaly call for differentiation.

Acromegaly appears early in life and affects the bones as stated, while arthritis deformans appears late in life and is associated with deformity of joints but not the bones of the face nor of the soft structure.

Acromegaly affects both the soft parts and the bones, while elephantiasis affects the skin and subcutaneous cellular tissue only.

The enlargement is more extensive in acromegaly than in syringomyelia, in which it is limited to the fingers and toes. The latter is attended with thermo-anesthesia and analgesia.

Prognosis.—This is unfavorable as regards a cure. The patient may live for many years. The disease may remain stationary for a long period, but is usually progressive.

Treatment.—This is not satisfactory. Extracts of the pituitary body and of the thyroid and thymus glands have been tried, but without any permanent results, although the former given in large doses (40 gr.) relieves the headache, and paresthesia of the hands.

The remedies that have been employed with favorable results are *Sulphur*, *Silicea*, *Potassium iod.* and *Arsenicum*.

THE SPLEEN.

The spleen occupies an oblique position deep in the left hypochondriac region, and embraces the cardiac end of the stomach, to which it is attached by a fold of the peritoneum known as the gastro-splenic ligament. Its outer surface is convex and smooth, and lies in contact with the diaphragm, which separates it from the ninth, tenth and eleventh rib. The inner surface is in contact with the left kidney, while the anterior border is often notched. The organ is invested by the peritoneum, except where the gastro-splenic and suspensory ligaments are attached; the latter is a fold of the peritoneum which connects the spleen with the under surface of the diaphragm. Beneath the peritoneal covering and intimately adherent to it is a fibro-elastic covering which forms the frame-work of the organ. It passes inward with the blood-vessels, lymphatics and nerves, at what is termed the hilum, forming a sheath for the blood-vessels, and from these and the inner surface of the capsule, bands or trabeculæ extend and, uniting, divide the organ into small spaces known as areolæ, which are filled with splenic pulp. The pulp consists of a network of branched connective tissue cells, granular matter, nucleated cells and red-blood corpuscles in all stages of disintegration, and of the Mal-

pighian bodies, which are small masses of lymphoid tissue.

The function of the spleen is not definitely determined. It is supposed to play an important part in hematopoiesis, to give rise to hemoglobin, to renew red-blood corpuscles and to be instrumental in the destruction of the old ones, and to reduce uric acid, on account of the large amount of lymphoid tissue. It is also supposed to produce an enzyme which acts upon the trypsinogen of the pancreas and converts it into trypsin. Its extract is rich in nucleins, phosphorus and iron.

PHYSICAL EXAMINATION.

Inspection.—This does not afford much information unless the spleen is greatly enlarged and the abdominal wall thinned, when it may form a visible tumor in the left side of the abdomen which moves with respiration.

Palpation.—The spleen is accessible to palpation in proportion to the degree of its enlargement and the relaxed condition of the abdominal walls. It is said to be enlarged only when its edge is palpable below the free border of the ribs at the close of a deep inspiration.

There are two methods of palpating it. First, with the patient lying upon his back, the physician stands or sits upon his left side and places his left hand, with the fingers slightly flexed, flat upon the patient's abdomen in such a position that they will press upon the skin under the free border of the ribs opposite the tenth costal cartilage. Have the patient

take a long breath. If the spleen is enlarged it will be felt to come against the finger tips and ride over them.

Second, taking a position upon the right side of the patient, place the fingers of one hand behind in the space between the posterior extremities of the tenth and eleventh ribs to tilt the spleen forward during inspiration. Place the other hand over the left hypochondrium with the finger tips pressed under the edge of the ribs; during inspiration, the organ, if enlarged, is felt as it is pressed downward against the fingers.

Percussion.—As the spleen is a solid body, percussion over it gives a dull sound in contrast to the tympanitic note of the stomach anteriorly and of the intestines below, or to the pulmonary resonance above. Below and posteriorly, its dulness merges into that of the lumbar region and of the left kidney. Its upper posterior portion is not accessible to percussion, as it is situated behind the diaphragm and is overlapped by the left lung. The area of splenic dulness may be encroached upon by the stomach and colon when they are distended with gas. Its dulness may appear increased when these organs are filled with solid matter. It may be displaced by ascites and by growths of various forms.

In percussion of the spleen the patient should be upon the right side. To define the upper edge percussion should be made from above downward, about midway between the posterior axillary and scapular line till pulmonary resonance is replaced by splenic dulness which is usually at the upper edge of the

ninth rib. To define the anterior edge percuss lightly along the line of the tenth rib beginning at its costal edge; the splenic dulness should be reached at the mid-axillary line. The posterior border is defined by percussion along the tenth rib, beginning near the middle line. Splenic dulness is reached about one and one-half inches from the vertebral spine. The lower edge is defined by percussing upward along the posterior axillary line. The lower edge of the spleen should be reached at the lower border of the eleventh rib.

Auscultation over the spleen may reveal friction, due to perisplenitis, over the surface of a splenic infarct.

Acute enlargement of the spleen occurs as the result of septic and infectious processes and may be due to typhoid, typhus, malaria, relapsing or scarlet fever, small-pox, diphtheria, erysipelas, tuberculosis, pneumonia, epidemic cerebro-spinal meningitis, pyemia, and septicemia.

Chronic uniform splenic enlargement is due to leukemia (spleno-medullary form) and to chronic malaria. It also occurs in splenic anemia, amyloid disease, cirrhosis of the liver, pernicious anemia, rachitis, passive portal congestion from hepatic cirrhosis and from the pressure of tumors, and a general venous engorgement from cardiac disease.

Irregular splenic enlargement is due to abscesses, carcinoma and hydatids.

Atrophy.—Atrophy of the spleen is observed as a senile change and as the result of a chronic disease. The capsule is opaque and shriveled. The pulp is diminished while the arteries are sclerosed.

Tuberculosis.—In general tuberculosis, the spleen is involved with other organs and in the chronic form there may be caseous masses, while in exceptionally chronic cases there may be an extensive fibrosis.

SPLENIC HYPEREMIA.

This may be active or passive.

The active type appears as the result of some acute infectious disease, traumatism, amenorrhea or inflammation. The spleen is enlarged and sensitive, the capsule tense and the whole condition simulates acute splenitis.

The passive type is dependent upon an obstruction to the portal circulation. This may be the result of hepatic, cardiac, or pulmonary disease, pylephlebitis or tumors. The spleen is enlarged and firm and of a deep red color. Its capsule is thickened. The symptoms are not definite and may consist of a sense of weight, fullness, pressure and slight tenderness. The edge of the organ can be palpated below the margin of the ribs. The area of percussion dulness is increased downward and forward. Should a toxic or septic condition be added to the mechanical congestion the organ becomes distinctly enlarged and softened.

The prognosis and treatment is dependent upon the amenability of the original disease to treatment.

Splenic Infarcts.—These are caused by blood-clots or vegetations which are dislodged from the valves or endocardium of the heart. At times they consist of calcareous particles which are dislodged from an atheromatous patch of the aorta.

These emboli may be infective or non-infective, according as they contain pyogenic micro-organisms or not.

As the terminal arteries of the spleen do not anastomose with each other except by capillaries, each supplies a definite area, and when any of these arteries become closed the area supplied becomes anemic. The area is triangular, corresponding to the distribution of the artery. The anemia is succeeded by a coagulation necrosis, and may later undergo cicatricial contraction.

This anemic infarct may become a hemorrhagic one; from a regurgitation of blood from the vein of the adjacent parts or from the arteries of the capsule.

Perisplenitis or Capsulitis.—This is a term applied to adhesions, a local thickening or a chronic peritonitis which may involve the whole or a part of the peritoneal covering of the organ.

Adhesions may unite the spleen with the stomach, colon, diaphragm, or abdominal wall. Local thickening is the result of an acute attack of peritonitis but may be dependent upon pleurisy, pneumonia, or may originate within the spleen.

Chronic peritonitis is a part of general chronic peritonitis; but it may be dependent upon a local lesion of the spleen as a gumma. A localized thickening of the peritoneal covering of the spleen is frequently observed.

Morbid Growths of the Spleen.—Malignant growths of the spleen are seldom if ever primary. Melanotic sarcoma, carcinoma, tubercles and hydatids have been demonstrated here, secondary to similar developments in other parts.

Syphilitic gummata are often associated with amyloid degeneration.

Abscess of the spleen has been demonstrated as the result of an infective endocarditis, pyemia, pyelephlebitis, typhoid fever, or hydatid cysts.

Its diagnosis is based upon the presence of repeated chills, fever with remissions and intermissions and the appearance of a fluctuating area on the surface of the spleen.

Amyloid degeneration of the spleen, sago spleen.—This is but a part of a general amyloid degeneration that involves other organs. The spleen is enlarged and there are evidences of this disease in other parts. The subject has been considered under "Diseases of the Liver."

SPLENITIS.

Definition.—This is a proliferative inflammation of the spleen. It may be acute, chronic, or suppurative in character.

Etiology.—The acute form is secondary to the acute infectious diseases; the chronic form occurs with chronic malarial infection and passive congestion of the spleen, while the suppurative form is secondary to infectious embolism, or occurs as the result of traumatism, perforation of a gastric ulcer or suppuration in the surrounding organs.

Pathology.—In the acute form the spleen is enlarged. During the early stages of the infection this is a simple congestion. The organ is at first firm, the capsule is distended, but as the process advances the organ becomes softer and upon section is found to be

of a lighter color than is normal. The capsule may be distended or wrinkled. Later there is an increased softening of the organ and cellular degeneration. In chronic hyperplasia of the spleen, the connective tissue is increased, the organ is large and firm, the capsule is thickened and distended. This thickening may be circumscribed or diffused. Fibrous adhesions may fix the spleen to surrounding organs.

In the suppurative form (abscess of the spleen) the first change noticed following an embolism is a hemorrhagic or anemic infarct. If this has been septic, suppuration soon begins at the apex of the infarct and gradually extends. Metastatic abscesses are most common near the surface of the organ and are usually multiple.

Symptoms.—These are indefinite. There is but little pain or tenderness unless perisplenitis is present. When the organ is enlarged there is a sense of weight, tension and distress referred to the splenic region.

In the suppurative form there are repeated chills, fever with remissions, and a general disturbance which will point to this condition. The spleen may present a swelling which in time fluctuates.

Diagnosis.—This is based upon the clinical history of the case and the physical signs.

Acute suppurative splenitis should be differentiated from splenic echinococcus and disease of the stomach and pancreas.

Chronic splenitis must be distinguished from new growths of the liver, kidneys, omentum or ovary, pleural effusions and fecal accumulations in the splenic flexure of the colon.

Prognosis.—This depends upon the primary condition. Acute and chronic splenitis are not in themselves always dangerous. The changes are often permanent. Abscesses of the spleen are a serious complication, especially if surgical procedure is not undertaken early, as they are liable to rupture and establish a fatal peritonitis.

Treatment.—This should be directed to the primary disease. In the acute form such remedies should be employed as will meet the condition. In chronic splenitis the *Iodides* are the most frequently indicated class of drugs. Abscess of the spleen demands a splenotomy and drainage. See remedies in diseases of the spleen.

REMEDIES IN DISEASES OF THE SPLEEN.

Ceanothus Americanus.—This remedy should be remembered in cases where the spleen is much enlarged, and there is pain in the splenic area. The patient is often of the lymphatic type, with a sluggish portal circulation, profuse menses, and a yellow leukorrhea. The skin is sallow, the face is puffy and expressionless, and the bowels are constipated. There is great pain in the left side, so that the patient cannot lie upon that side.

Polymnia uvedalia.—This remedy has been found serviceable in cases where there was inactivity of an organ, with a passive congestion of the part. It is used by many both internally and locally for the relief of "ague cake" and hypertrophy of the spleen, also in acute splenitis, where there is tenderness over the left hypochondriac region, with congestion and stasis of the organ.

Diadema aranea.—This remedy should be thought of in those who are suffering from the chronic effects of malarial poisoning, or who live in damp, wet places. Often the malaria has been partially relieved by quinine, but the patient is rendered miserable by damp houses, or by being upon the water. There is great languor and lassitude. The epigastrium is painful to pressure. It has reduced much enlarged spleens in those suffering from ague, who are constantly chilly, and are made worse by damp weather and by living in damp houses.

Eucalyptus globulus.—This produces a fever that is remittent, intermittent and asthenic in type. The patient is usually suffering from the quinine cachexia. There is great muscular weakness; any movement is painful. There is an excessive secretion of saliva, with a relaxed, aphthous condition of the mucous membrane of the mouth. The power of the digestive organs is impaired, and diarrhea is usually present. The heart's action is increased, while the arterial tension is lowered. The spleen is contracted and shows fatty degeneration.

Arsenicum album.—This remedy is indicated in cases of hypertrophy of the spleen dependent upon malaria. The patient is greatly emaciated and there is sudden sinking of the strength, with weakness and prostration. He is scarcely able to walk. With the weakness there is restlessness and anxiety. The pains are burning in character. The skin is white and pasty and often covered with a cold, clammy perspiration. There is dryness of the mouth with a constant thirst for a mouthful of water which is often vomited.

Cinchona.—This remedy produces hyperemia and congestion of the spleen which passes on to an actual enlargement of the organ. There is great sensitiveness of the nervous system so that the slightest touch, and either a physical or mental effort, aggravates. The patient suffers from debility and the body feels sore as if sprained. There is profuse perspiration while sleeping, or on being covered. The skin presents a yellow, jaundiced appearance. There is no desire for food or drink; the abdomen is tympanitic; there is great fermentation from eating fruits. The feces are undigested.

Grindelia squarrosa.—This remedy is of service in enlargement of the spleen. It is tender to pressure. There are cutting pains in the region of the spleen that extend down to the hips. The complexion is sallow. There is more or less ascites with anemia present. Many of these cases are suffering from malaria and the quinine cachexia.

When the enlargement of the spleen is associated with enlargement of the liver, *Carduus* or *Chelidonium majus* will usually bring relief.

Spiritus glandium quercus.—This remedy has been found serviceable in both acute and chronic difficulties of the spleen, with hypertrophy of the organ. There is dropsy of the legs and a history of alcoholism. It should be used in teaspoonful doses of the tincture.

Arnica.—This should always be remembered in cases due to traumatism. When this does not give the desired results, or there are indications of an unabsorbed blood-clot in the spleen, *Bellis perennis* should be studied. *Bryonia alba* is of service when

there are sharp stitching pains which are produced by the slightest motion.

During the stage of acute congestion and inflammation of the spleen, either *Aconite*, *Veratrum viride*, or *Ferrum phosphoricum* is the remedy.

When *Aconite* is indicated the countenance has an expression of fear. The patient is restless, tossing about in agony, is intensely nervous and is sure he is going to die. This mental condition cannot be allayed. The pulse is hard, full and strong.

When *Veratrum viride* is indicated the nervous symptoms are not so characteristic as under *Aconite*; but the symptoms of the circulatory system are now pronounced. There is intense excitement of the arterial system, and loud, strong beating of the heart, with a quick pulse and slow respirations. There is apt to be congestion of the base of the brain, chest, or spine.

Under *Ferrum phosphoricum* the symptoms are not as active as in either of the others. The pulse is quick, but soft and full. There is a profuse perspiration, but it brings no relief.

Taraxacum.—This remedy is indicated when there is pain in the region of the spleen during an attack of malarial fever. The tongue is mapped; it is coated white but cleans off in patches, which are dark red, tender and sensitive. There is gagging and nausea at night, with great prostration, loss of appetite and profuse perspiration while sleeping. This remedy should be studied in all those cases of a bilious type where quinine has but delayed the paroxysm and the fever has assumed a slow type.

Nitric acid.—This remedy has been of service in cases of chronic hepatitis and “liver cake” due to malaria; also in cases of enlarged spleen following yellow fever. It is of most service in those who are of a spare habit, with rigid fiber, dark swarthy complexion, who are suffering from some chronic disease and take cold easily. The pains, although slight, affect the patient severely. He is so weak that he must lie down most of the time.

Natrum muriaticum.—This remedy produces stitches and pressure with congestion of the spleen, and has relieved swollen spleens the result of malarial fever when the patient is anemic, emaciated especially about the upper portion of the body and is inclined to take cold. The bowels are apt to be constipated, the stools being dry, hard and crumbling. The chill appears at 10 or 11 A. M. and is attended with a headache which begins with blindness and is throbbing in character. Many of these patients have taken much quinine and are continually craving salt.

Floating or wandering spleen is a condition dependent upon a relaxed condition of the splenic ligament.

The organ is generally enlarged, and is increased in density. It is recognized by its shape, the notch, by being freely movable, and by the absence of the splenic dulness in its normal place, and its presence when the spleen is replaced.

It may be held in place by an abdominal bandage.

SPLENIC ANEMIA.

Synonyms.—Splenic cachexia; Splenic pseudo-leukemia.

Definition.—This is a chronic disease that terminates fatally. It is characterized by progressive enlargement of the spleen, anemia without leukocytosis or enlarged glands, and a tendency to hematemesis.

Etiology.—The great majority of these cases occur in the male. There is nothing known of the predisposing factors in many of these cases. In all probability there is a malarial, long-lived bacterial or parasitic agent or chronic toxemia present.

Pathology.—The spleen is uniformly enlarged and its consistence increased. The fibrous tissue is increased and the endothelial cells lining the walls of the blood sinuses undergo an active proliferation. The splenic pulp and the Malpighian bodies are atrophied. The liver may be cirrhotic, but the lymphatic glands show no enlargement.

An examination of the blood shows that the red cells are not reduced below 3,000 per cubic millimeter; the hemoglobin show a great loss; nucleated red cells may be present. The leukocytes are also reduced, the average count being about 4,000 per cubic millimeter.

Symptoms.—The disease is chronic and the symptoms appear slowly. During the early stage anemia is pronounced and there is a loss of muscular power and a wasting of the muscles, and digestive disturbances are complained of; a tumor is soon noticed in the left side of the abdomen. This may gradually enlarge until it extends across the middle line of the abdomen. Attacks of severe pain are complained of and referred to the spleen. The anemia becomes more pronounced and the loss of strength more ap-

parent. The temperature is above normal, reaching 102° in the evening, and is hectic in character and there is a progressive asthenia.

Hematemesis is common and often profuse. It is usually followed by melena. In some cases there is epistaxis, again there is oozing from the gums. Hematuria and hemoptysis are rarer. Ascites occurs occasionally and disappears with tapping. The pal-
lor is extreme and jaundice may occur during the later stages.

Diagnosis.—This is based upon the symptoms as outlined.

The blood counts should differentiate it from spleno-medullary leukemia in which the leukocytes show a great increase; from Hodgkin's disease it should be distinguished by the fact that the glands are enlarged in Hodgkin's disease, while the spleen is not so much enlarged. The spleen is enlarged in syphilis and may have the lardaceous disease; this would be indicated by albuminuria, edema and uniform enlargement of the liver. A syphilitic spleen may contain several gummata.

The enlargement of the spleen accompanying pernicious anemia is not so great as that with splenic anemia while the blood contains megaloblasts.

In malignant disease of the spleen emaciation is a pronounced symptom; there may be secondary growths in other parts and the temperature remains normal.

Prognosis.—The disease pursues a chronic course and while the health may be fair for some years there is an increasing anemia and death results from

asthenia or hemorrhages. In some cases the course of the disease is shorter.

Treatment.—In the management of these cases the patient should be placed under the best possible conditions. The diet should be such as is highly nutritious, easily digested and assimilated. Meat juices, bone marrow are temporarily beneficial. These patients should be out of doors as much as possible.

In the selection of the remedy, the case must be analyzed carefully. *Eucalyptus* gives much relief where there is a history of Honduras fever. *Chininum arsenicum*, *Arsenic* and other remedies mentioned in this section should be studied.

DILATATION OF THE GALL-BLADDER.

This condition is dependent upon an interference with the outflow of the bile. When the obstacle is removed the organ may assume nearly its normal size, while in other cases it remains dilated.

While in this dilated condition there is always a tendency to infection from the intestines.

Symptoms.—The gall-bladder is enlarged in all directions. If the abdominal walls are thinned the viscus may be palpated and presents an enlarged pear-shaped outline.

The organ is easily movable and rises and falls with each respiratory excursion. If a corset liver is present and the gall-bladder is excessively dilated the condition may be mistaken for an ovarian cyst or a case of hydronephrosis. In many cases there are no subjective symptoms that will direct attention to this condition.

Diagnosis.—This is based upon the presence of an enlargement in the region of the costal extremity of the ninth or tenth ribs, and is confirmed by the puncture or exploratory laparotomy.

Prognosis.—This depends upon the origin of the trouble.

Treatment.—This consists of surgical measures and thorough drainage.

CATARRHAL CHOLANGITIS AND CHOLECYSTITIS.

Definition.—This is a catarrhal inflammation of the bile-ducts and gall-bladder.

Etiology.—It is frequently the result of a catarrhal inflammation extending from the duodenum, or of mechanical irritation caused by calculi, parasites or diseased conditions that give rise to irritation. It may be due to passive congestion of the liver or to the chemical changes in the bile that occur when it becomes stagnant. Over-eating of fatty foods is also a cause. The infectious diseases and poisoning by phosphorus or lead are also causes, as well as the drinking of ice-water and spirituous liquors.

Pathology.—The inflamed duct is dilated. Its mucous membrane is thickened and of a red color and is filled with a thick, tough mucus. These changes are most apparent in the common duct, and as the process subsides, the duct wall near the duodenum may remain thickened and the lumen thus become narrowed or even occluded. The gall-bladder is distended. Its walls are tense. The coats in severe cases are swollen, infiltrated and softened.

Symptoms.—In many cases the symptoms of gastro-duodenal catarrh have been present for some time. There is headache, vertigo, malaise and slight chilliness, and elevation of the temperature, and an increase in the pulse-rate. The tongue is coated, and the breath fetid. The patient complains of pain and fulness in the right hypochondriac region. The pain

may shoot down into the right iliac fossa, and be so localized as to suggest appendicitis. There is a bitter taste in the mouth, loss of appetite and nausea. A slight yellow or lemon tinge of the skin is observed, gradually deepening into a pronounced jaundice. The pulse now becomes lower. The patient is irritable, morose and complains of pruritus.

The urine is dark, due to the presence of bile-pigments, while the feces are clay-colored. The liver is enlarged and sensitive; the gall-bladder is distended and often palpable. The duration of an attack is from one to three weeks, when it usually terminates in recovery, although gall-stones may develop in cases where the inflammation has been severe.

Diagnosis.—This is based upon the presence of gastro-duodenal catarrh, the appearance of jaundice and the enlarged gall-bladder. It is often difficult to exclude diseases that are accompanied by jaundice.

Prognosis.—This is favorable in acute cases, many attacks of which occur and subside without being recognized. Biliary calculi may develop as a result of these acute attacks. In the more severe attacks the danger to life from ulceration and perforation should be remembered.

The sequelæ of acute cholecystitis are serous distension, ulceration, and empyema of the gall-bladder.

Treatment.—The first endeavor should be to remove the gastro-duodenal catarrh. The patient should remain in bed while the dyspeptic symptoms continue. The diet should be liquid and bland; milk, either plain or diluted with soda-water, is excellent. Should there be extreme thirst, especially if

the patient is an alcoholic, the milk may be diluted with Vichy or Apollinaris water, or may be given either hot or cold, preferably hot. Water should be taken in abundance; the alkaline waters are beneficial. Some cases will not tolerate rich milk and in these cases the cream should be removed. Butter-milk is often well borne. In connection with milk, clear thin soup may be allowed and a small quantity of farinaceous foods. As the attack subsides, fish, eggs and meats in limited quantity may be allowed. Alcohol should be forbidden as well as fats and oils; tea, coffee and cocoa should be taken only in moderation. Should some stimulant be demanded a light wine, such as hock, may be employed, but no effervescing wine. Many of the cases are benefited by a high enema of a large quantity of water which is retained as long as possible, so that absorption may take place. This may be repeated three times a day. When the gall-bladder can be palpated it may be emptied by manipulation and pressure against the vertebral column, but this should be done with care as rupture may take place. The faradic current has been employed over the gall-bladder to remove the mucus plug. If there is much soreness over the gall-bladder an ice-bag may be applied. Should there be pain that is not severe but extends over wide area, heat may be applied either by means of a poultice or a hot-water bottle. Precaution should be taken to avoid the accumulation of feces at the hepatic flexure of the colon. Should such a condition occur it should be removed by the use of high rectal enemata of olive oil.

If the temperature is high, if there are signs of con-

stitutional disturbance and an increasing area of peritonitis, surgical interference should be resorted to.

Gelsemium.—This is frequently the first remedy indicated in catarrhal conditions of the duodenum and biliary ducts. The patient complains of lassitude, prostration and a general relaxation of the muscular system. There is a mild type of jaundice with passive congestion of the liver, bilious diarrhea, vertigo and fulness of the head.

Hydrastis Canadensis.—This remedy is indicated when the appetite is poor and the digestion of starches is impaired, causing sour eructations. The tongue is large, broad and flabby, and is covered with a yellow fur. There are indications of portal congestion. There is dull aching pain in the region of the stomach and often an "all gone sensation." The stools may be light yellow and papescent, or there may be chronic constipation.

Mercurius solubilis.—This remedy is indicated when the symptoms are aggravated by cold. There is sensitiveness with sharp, cutting pains in the region of the gall-bladder. The stools consist of feces and greenish mucus and are attended with a constant tenesmus. The tongue is thickly coated, broad, and shows the imprint of the teeth.

Podophyllum.—This remedy is of service when there is a slight jaundice present. There is pain and soreness in the region of the gall-bladder. The stools change in color, being at one time light-colored, at another yellow or green and diarrheic.

Chelidonium majus.—This remedy is indicated when the liver is congested and sensitive. There is

more or less jaundice with pain under the inferior angle of the right shoulder-blade. The stools are thin, watery, and are yellow or gray, dependent upon whether the biliary ducts are obstructed or patulous. There is a bitter taste and the tongue is coated yellow.

Myrica cerifera.—This remedy is of service in catarrhal conditions of these parts, when there is a sensation of fulness in the hepatic region and abdomen, the urine is scanty in quantity and of a yellow color. The stools are clay colored, loose and mushy. The patient complains of debility and a drowsiness that almost amounts to a stupor.

Sodium salicylate ix.—This remedy should also be studied in this class of cases.

Other remedies which may be of service are *Kali bichromicum*, *Kali muriaticum*, *Nux vomica*, *Cubebs* and *Copaiva*.

CHRONIC CATARRHAL CHOLECYSTITIS.

This is a result of repeated acute attacks, and is frequently associated with gall-stones.

The gall-bladder is often distended with a thick tenacious mucus, and may contain calculi. The walls of the gall-bladder are thickened and there may be adhesions that bind to the surrounding organs. The symptoms and treatment are those of cholelithiasis.

SUPPURATIVE CHOLANGITIS AND CHOLECYSTITIS.

Definition.—This is a suppurative inflammation of the bile-ducts and gall-bladder.

Etiology.—It is most common in gouty subjects and those suffering with biliary calculi.

It may be dependent upon micro-organisms, the pneumococcus, typhoid bacillus, streptococcus pyogenes, staphylococcus pyogenes, either albus or aureus, or the bacterium coli, or an obstruction of the bile-ducts.

Pathology.—The suppurative process may involve the gall-bladder, the hepatic and common bile-ducts or it may be limited to any one of them. The points of suppuration may be single or multiple. The bile-ducts are dilated and filled with mucus, pus and bile. The surrounding connective tissue is often infiltrated with pus which may involve the portal vein and give rise to phlebitis. The process may extend to the structure of the liver where small abscesses may develop. Gall-stones are usually present in the gall-bladder or bile-ducts. The gall-bladder is distended, due to the gall-stones or to mucus, pus (empyema of the gall-bladder) and bile. Ulcer may be found within the viscus and gangrene may appear as a complication. Adhesions usually form, as the result of the inflammation of the surrounding connective tissue, and as a result the gall-bladder is contracted and filled with tough mucus.

Symptoms.—Suppurative cholangitis may appear as a complication of some of the acute diseases. There may be no definite symptoms. In other cases there are symptoms of gastro-duodenal catarrh during the early stages. The liver is swollen and tender, the gall-bladder is moderately enlarged, and there is a progressive loss of flesh and strength.

Jaundice, while usually present, is mild and not as characteristic a symptom as in the catarrhal form. Following the early symptoms there appears a fever which is remittent rather than intermittent in type. There are chills, followed by a rise in the temperature of from three to six degrees.

Pain may accompany the chills. The spleen is enlarged. The obstruction may be overcome, the pus escape and recovery thus take place. Should there be gangrene of the walls of the gall-bladder there may be no fever.

Examination of the blood shows leukocytosis. These cases terminate fatally when pyemia or rupture results. The duration of the disease is from two to three weeks, but may be much longer.

Diagnosis.—This is based upon the chill, the hectic type of fever, the leukocytosis and the general symptoms of suppuration in the region of the gall-bladder, which is tender and painful to palpation. This enlargement appears suddenly and is in the direction of the gall-bladder.

Prognosis.—In many cases this is unfavorable. Death results from septico-pyemia, metastatic suppuration or rupture of a distended viscus with the attending peritonitis. The typhoid type of infection is especially dangerous and ulceration and perforation are frequent. An early recognition of the character of the disease and its prompt treatment by surgical methods renders the prognosis more favorable. There are cases that recover without operative procedure, but they are rare.

Treatment.—Catarrhal conditions of the structures

should receive prompt attention that they may not result in suppuration. The patient should be given absolute rest in bed. Warm applications over the hepatic region bring a degree of relief. The diet should be liquid and supporting, and solid foods should be withheld. These cases demand surgical treatment, and the diagnosis having been made, the gall-bladder should be incised and drained, or removed if it is gangrenous.

Echinacea angustifolia, *Chininum arsenicosum*, and *Arsenicum album* should be studied; when thorough drainage has been instituted, *Silicea* and *Hepar sulphur* should be added to the list.

GANGRENOUS CHOLECYSTITIS.

This appears as a result of a severe acute infective inflammation of the gall-bladder.

The symptoms are similar to those of the severe cholecystitis.

The treatment is surgical and consists in the removal of the gall-bladder.

CHOLELITHIASIS.

Symptoms.—Gall Stones, Biliary Calculi.

Definition.—This term is applied to a diathesis that favors the formation of biliary calculi, and to their presence within the system.

Etiology.—While all ages are subject to it, yet it occurs most frequently during the later periods of life and is more common in women, especially those who have borne children, than in men. Its development is favored by the excessive use of saccharine and fatty

foods. Sedentary occupation, anxiety, constipation, tight lacing, diabetes, enteroptosis, foreign bodies and all those conditions that retard the flow of bile are predisposing causes but do not themselves lead to the formation. Of the immediate causes catarrhal inflammation of the mucous membrane of the gall bladder and hepatic ducts are common ones. Certain micro-organisms, as the colon bacillus and the typhoid bacillus, also play an important role.

Pathology.—Gall stones may be single or multiple, and vary in size from a grain of sand to an inch or more in diameter. When there is but one calculus it is oval in shape, when multiple they are bounded by facets. The fine particles consist of bilirubin-calcium. The large calculus consists of a central portion composed of epithelium or mucus with inspissated bile, with zones of cholesterin about it.

The cholesterin forming the calculus is derived from the disintegration of the cells lining the gall bladder. The cholesterin is cemented together by means of bilirubin-calcium which is present in the gall bladder. These two substances form the calculus in its early stages. It takes from five to six months for the formation of a calculus, which can only occur when a cholecystitis is present.

Symptoms.—Biliary calculi gives rise to symptoms only when they cause obstruction of the bile ducts, otherwise there may be nothing to indicate their presence. When they distend the gall bladder, they may be detected by palpation and by the presence of a peculiar fremitus, while auscultation may give a friction sound. The skiagraph or fluoroscope may show their

presence. It is when there is an effort to pass the calculi that they give rise to the severe pains known as "biliary" or "hepatic colic." The pain is colicky and excruciating in character. It begins in the right hypochondrium and radiates from this as a centre to the right shoulder and the stomach. There are attacks of shivering, and elevation of the temperature with nausea and vomiting. The face is pale and there is a cold perspiration over the body. If the attack is prolonged, jaundice appears; this is of short duration if the calculus passes readily, but if the duct remains obstructed it may become intense. Collapse in varying degrees of intensity marks these cases. It is indicated by coldness, clammy skin, pallor, weakness and rapid pulse. It has proven fatal in certain cases; while dilatation of the right heart has resulted in other cases. Should it remain impacted, there may be ulceration and perforation of the duct, the calculus passing into the stomach, intestine or peritoneal cavity. These attacks are usually repeated when the common or hepatic duct is occluded; the bile is retained; there is an increased amount of mucus, and suppuration results. The gall bladder is distended, jaundice is pronounced, and a periodic type of fever, known as intermittent hepatic, results. This is preceded by chills and followed by sweats, and unless relief is found, death results.

If the calculi are in the intra-hepatic bile passages they produce no symptoms.

In looking for gall stones the stools should be passed into a double gauze bag. This bag can then be allowed to hang in the hopper of the water-closet

and be flushed as often as necessary, until all soluble matter has been washed away.

Diagnosis.—This is based upon the clinical history of the case. The hepatic colic, the jaundice, the enlarged gall-bladder, are each of assistance, while the presence of biliary calculi in the feces or the exploratory celiotomy are conclusive.

OBSTRUCTION OF THE BILE-DUCT.

- (1) There are attacks of hepatic colic.
- (2) Emaciation is not marked.
- (3) May be overcome therapeutically.
- (4) Both are attended with intense jaundice. May be attended with fever.

CARCINOMA OF BILIARY PASSAGES.

- (1) There is no colic.
- (2) Emaciation is progressive.
- (3) It is progressive and death usually results within a year.
- (4) There may be metastatic nodules in other portions of the body.

HEPATIC INTERMITTENT FEVER.

- (1) When this is dependent upon obstruction of the biliary passages, persistent jaundice is present.
- (2) The calculi or obstructed gall-bladder may be palpated.
- (3) The blood is free from parasites.
- (4) It is not influenced by remedies directed to a malarial origin.

MALARIAL INTERMITTENT FEVER

- (1) If there is jaundice it is not persistent.
- (2) This condition is not present.
- (3) The blood contains parasites.
- (4) It is influenced by remedies directed to a malarial origin.

HEPATIC COLIC.	RENAL COLIC.	INTESTINAL COLIC.
(1) The pain is usually referred to the right hypochondrium and radiates to the shoulder.	(1) The pain is referred to one loin and radiates in the line of the corresponding ureter.	(1) The pain is referred to the umbilicus and radiates over the abdomen.
(2) Jaundice is usually present.	(2) No jaundice.	(2) No jaundice.
(3) The urine contains biliary pigments and is greenish or brownish in color.	(3) The urine may contain blood or pus corpuscles and crystalline matter.	(3) The urine is normal, there may be an intestinal derangement or lead poisoning.

Apart from those already mentioned, the following conditions should be borne in mind as at times simulating cholelithiasis, cholecystitis, floating kidney, intestinal ulcer, hyperchlorhydria, appendicitis, mucous colitis, acute pancreatitis, hepatic crisis in tabes, lead colic and lumbago.

Prognosis.—This must not be judged by the severity of the pain. The severity of the pain and the accompanying shock have been known to cause death. A sudden cessation of the pain is usually considered favorable. Calculi may be expelled through the wall of the duct or gall-bladder. The appearance of an intermittent type of fever, a perforation of the gall-bladder and the impaction of the calculus in the hepatic duct renders the case unfavorable. The willingness of the patient to coöperate in the means employed for the relief of the conditions favoring the formation of gall-stones is also an important factor. The prognosis has improved with the advance in hepatic surgery.

Complications.—These are varied. Infection of the bile-ducts may result. Ulceration and cicatricial

constriction or stricture may take place and a permanent occlusion of the duct and a grave form of icterus result. In other cases perforation of the gall-bladder or ducts results.

Closure of the cystic duct is not usually followed by as serious consequences as when the ductus choledochus is occluded. Jaundice is present in a percentage of the cases. Annular carcinoma has been attributed to the irritation of the impacted calculus in the gall-duct. Catarrhal and suppurative cholecystitis develops in some of these cases.

Hepatic abscesses are also a complication of cholelithiasis at times. Ulcer and fistula occur in some cases. The calculi in passing in any direction have been known to perforate the intestine, and to cause its occlusion. The irritation of the gall-stones may cause a proliferation of the connective tissue cell that terminated in hepatic cirrhosis. Chronic peritoneal lesions have been known to develop and bind the gall-bladder to surrounding structures.

Treatment.—The conditions that predispose to the stagnation of the bile and the formation of gall-stones should be avoided. This is especially true of persons past the meridian of life who live well and exercise but little. The diet should be bland, nutritious and readily digested; a mixed one that contains plenty of proteids; the fatty and saccharine foods should be limited. Those articles of diet that are rich in cholesterolin, as the yolk of eggs, should be avoided, as well as such stimulants as ale, porter and port wine. Peas and carrots contain a substance that resembles cholesterolin and should be avoided. Acid fruits and fresh

vegetables should form a large portion of the diet. Potatoes and those vegetables that contain potassium salts are also serviceable. Bread, cereals that are well cooked, fresh fish, except salmon and mackerel, may be taken. Lean beef and chicken may be taken once a day.

The exercise should be systematic and such as will promote metabolism and assist the hepatic circulation. This may be accomplished by the removal of all constricting bands from about the waist and chest, and by taking deep systematic inspirations. Horse-back riding and bicycling are also beneficial. Walking is particularly useful for women, as their household duties do not furnish sufficient exercise. If there are indications of ulceration of the gall-bladder or ducts, exercise that demands sudden movements and causes succussion of the body should be avoided. General massage is of service. Water should be taken in abundance. The different alkaline waters and warm saline waters when taken in connection with a regulated diet and exercise are beneficial. Constipation should be avoided, and relieved if present. This can usually be accomplished by regularity in habits, diet, exercise and massage. The management of the case must of necessity vary somewhat according, as it is a case of simple cholelithiasis, or whether it is complicated with cholecystitis or cholangitis. Those conditions that result in catarrhal inflammation of the bile-ducts and intestines should be avoided. If this condition is present it should be corrected as it favors the formation of biliary calculi.

In the management of an attack of biliary colic,

the applications of hot compresses or hot poultices; hot baths or hot water rectal irrigation may be of service.

Olive oil is of service in many persistent cases. It should be administered in doses of two hundred grammes (nearly a tumbler full). The offensive taste may be removed by sucking orange juice. Enemata of olive oil may be employed when it cannot be retained in the stomach, and it is often more efficacious when administered in this way.

Glycerine is a cholagogue and is of benefit in many of these cases, as it increases the quantity of bile and in this way washes out the concretions. The dose should be from twenty to thirty grammes.

A mixture of three parts of ether to one of turpentine, of which twenty to thirty drops are administered four times a day, has a favorable influence in many of these cases.

Chloroform is often of service, and may be administered either by inhalation or by mouth. When given by the former method, ten to thirty drops should be placed upon a handkerchief and the patient allowed to inhale the vapor as long as the spasm continues. If the pain returns, the anesthetic should be renewed. In other cases a teaspoonful of aqua chloroformi repeated every ten to fifteen minutes is of service. An attack of gall-stones may sometimes be aborted by the use of chloroform water for several days preceding the expected attack.

In cases of prolonged obstruction in which persistent vomiting is present, the patient should be sustained by nutritious enemata.

Operative interference is demanded in those cases in which the common duct is occluded by a gall-stone and stasis of the bile results. It is also indicated in cases of suppurative cholangitis, cholecystitis, or pericholecystitis. Adhesion between the gall-bladder and the intestines, stomach or omentum, when they cause distress, pain, stenosis of the duodenum, ileus, or peripyloritis, require surgical treatment.

In perforation of the bile-duct and peritonitis, in abscesses of the liver, and those cases in which the condition begins mildly and gradually increases in severity in spite of the balneological and medicinal treatment, operative measures are demanded. They are also required where the subject has become addicted to the morphine habit as a result of the suffering from the gall-stone.

Dioscorea villosa.—This remedy is considered by some to be a specific in "bilious colic" that is dependent upon the passage of the gall-stones, but it is not. The conjunctiva and the skin present a yellow tinge. The stomach is deranged, the tongue is coated and there are small frequent stools attended with flatulence. The pain is referred to the left hypochondrium and umbilical region, it is spasmodic in character and is as if the parts were twisted by a powerful hand, returning every few minutes. It is relieved by walking, by standing erect and bending backwards, and is worse while bending forward and while lying.

Hydrastis Canadensis.—This remedy is of service in the advanced catarrhal states. The subject is debilitated and easily tired and presents a cachectic ap-

pearance. There are evidences of gastro-duodenal catarrh. The liver is sensitive to pressure and there is jaundice with evidences of gall-stones. Burnett employed this remedy in ten drop doses of the tincture in hot water every half hour in hepatic colic due to gall-stones.

Chelidonium majus.—Through its action upon the bile-forming function of the liver, this remedy has a decided influence in preventing the formation of gall-stones as well as in assisting in their expulsion. It causes a thinning and a profuse secretion of the bile. The skin is jaundiced. The patient is exhausted and there is more or less distress about the inferior angle of the right scapula.

Cinchona officinale.—This remedy in the 6x has been spoken of as curing every case. It will not. But it is of service in many cases where there is a periodicity of the symptoms. There is sufficient clinical evidence that it has the power of preventing the formation of gall-stones.

Ox-gall, or, better still, the salts of the bile acids are employed in these cases and are accredited with the power of dissolving cholesterin as well as assisting intestinal peristalsis and preventing fermentation. They should be given in $\frac{1}{4}$ to $\frac{1}{2}$ gr. doses.

Berberis vulgaris.—This remedy is of service in those cases where there are large quantities of sand rather than stones. The nutrition is impaired. The face is pale and sunken. There is marked prostration, and dark circles about the eyes. There is burning pain in the region of the kidneys. The pain radiates from the kidneys to the bladder. There is also

pain in the region of the gall-bladder. The stools are clay colored. The urine is red or yellow, turbid.

Calcarea carbonica 30x.—Drs. Deury and Hughes recommend this remedy in attacks of gall-stones when the constitutional indications demanding the remedy are present.

Euonymin IX has proven serviceable when the urine is loaded with uric acid and there is an occipital headache present, which is of such a character that the patient feels stupid.

Sodium succinate.—This agent in five grain doses before each meal and on retiring has a most favorable action in controlling the paroxysms of the disease, which become gradually less frequent and less severe. It must be continued over a prolonged period; it is of no benefit during an attack.

Sodium glycocholate.—This agent should be studied in cases of cholelithiasis that are associated with torpid liver, as observed in cases of alcoholism, drug-habit, melancholia, constipation and chronic malaria.

JAUNDICE.

Synonym.—Icterus.

Definition.—This is a condition in which the bile-pigment (bilirubin) escapes into the general circulation, giving rise to a yellowness of the skin, mucous membranes and fluids of the body. It is a symptom and not a disease.

Varieties.—Post-operative jaundice appears under two forms, a mild or benign form, and a graver form. The first is due to emotion, as fear of the operation or to the action of chloroform. The second is depend-

ent upon pyemia, chloroform poisoning or a manipulation of the peritoneum. Some one of these factors undoubtedly excites spasms of the biliary canal. Jaundice seldom follows an operation without anesthesia, where the pain is felt by the patient.

Jaundice of pregnancy appears during the closing weeks of pregnancy, is due either to the pressure of the enlarged uterus upon the liver, or to the toxemia of severe eclampsia. It may persist until the termination of the pregnant state.

Menstrual jaundice occurs before and during menstruation. It is usually accompanied with a hyperemic condition of the liver and of the mucous surfaces of the bile-ducts.

Starvation jaundice is sometimes observed in cases of starvation that have lasted several days.

Syphilitic jaundice occurs with the secondary syphilitic symptoms of the skin and mucous membrane, and also during the tertiary stage. In the latter case gummatous or diffuse hepatitis may be the cause.

Jaundice following extravasation of blood is occasionally observed after severe traumatic or scorbutic hemorrhages into the cellular tissues or body cavities, and in lesions about the female sexual organs. Urobilinuria is present.

Emotional jaundice due to fear, astonishment and other emotions has been recognized. Its duration is in direct proportion to the rapidity of its appearance.

Hematogenous jaundice is a term applied to a condition that is present during certain diseases in which there is a disintegration of the red blood corpuscles

and a deposition of hematin in the tissues. It is not a jaundice in the true sense of the term. Its clinical features are: the slight jaundice, the grave constitutional symptoms, the feces contain bile, and there is present a hemic infection or intoxication.

CATARRHAL OR OBSTRUCTIVE JAUNDICE.

Etiology.—Obstructive or hepatogenous jaundice is dependent upon catarrhal inflammation of the biliary ducts, or of the duodenum; upon presence of foreign bodies, as calculi or parasites, within the duct; upon stricture of the ducts, or upon obstruction from pressure without the duct.

Pathology.—The biliary capillaries are distended with bile. The hepatic cells are more or less pigmented. The bile is absorbed by the lymphatics and reaches the general circulation and pigments the tissues. The urine, the secretions and all liquid exudates of the system are pigmented. When the hepatic ducts are occluded the bile cannot reach the intestines and the stools are light-colored. The pronounced disturbances of the nervous system are the result of excessive cholemia dependent upon the cholic acid salts.

Symptoms.—The most important symptom is the yellow discoloration of the skin, conjunctiva and mucous membranes. This varies in intensity from a pale yellow tint to a greenish black, depending upon the completeness and duration of the obstruction. The urine is dark brown, or greenish, with a golden yellow froth; it contains bile and in some cases albumin and casts. The sweat may also show coloring

with bile. The stools become a pale drab or clay color, they may contain fat and are frequently offensive, owing to the lack of bile. The bowels are often constipated. In chronic cases there is itching of the skin, and urticaria or lichen may be present. There is nausea and often vomiting with loss of appetite and emaciation. Toxic paresis of the myocardium appears and the pulse is frequently much slower than normal. There is a tendency to hemorrhage and ecchymosis. The patient may complain of languor, sleepiness, melancholy and great depression of spirits, while in severe and protracted cases cholemic intoxication, convulsions, delirium and coma may appear. The catarrhal form is not usually attended by much pain, but the jaundice develops rapidly after exposure or dyspepsia. During the early stages the liver may be enlarged, while if the jaundice persists, it is reduced in size.

Diagnosis.—This is based upon the discoloration of the skin and mucous surfaces, the dark colored urine containing bile, and the absence of coloring matter in the feces.

If the obstruction is in the hepatic duct there is no distension of the gall-bladder. If the cystic duct is occluded, ectasis of the gall-bladder may result, but there is no jaundice. If there is ectasis of the gall-bladder with jaundice, the obstruction is probably in the ductus choledochus.

Jaundice due to catarrh of the bile-ducts is associated with catarrhal states of the stomach and intestines. It appears without swelling of the liver and terminates without hepatic pain, usually within a few weeks.

Jaundice due to gall-stones is usually attended with repeated colic and chills. In time there is fever, vomiting and tenderness of the liver. The disease commonly occurs in those past thirty years of age.

Jaundice may be attributed to pressure from without when there is clinical evidence of some development which could produce such a pressure, and when there is an accompanying jaundice, which gradually appears and deepens in intensity.

Jaundice may be dependent upon pylephlebitis; this is often associated with cirrhosis or syphilis of the liver or dependent upon new growths of the portal vein and proliferative peritonitis. Other conditions that should be considered in the differential diagnosis are malignant disease, yellow fever, Weil's disease, acute yellow atrophy and portal cirrhosis.

CATARRHAL JAUNDICE.

JAUNDICE DUE TO CALCULUS,
ETC.

- | | |
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| (1) There is no colic. | (1) Repeated attacks of colic. |
| (2) There are no calculi passed by the bowels. | (2) Calculi may pass by the bowels. |
| (3) There is no fremitus, no friction sounds, nor does palpation reveal calculi. | (3) There is frequently fremitus; friction sounds and calculi may be detected in the gall-bladder by palpation. |
| (4) The icterus is not protracted or intense. | (4) The icterus may be protracted and intense. |

Prognosis.—This depends upon the cause. If the cause is removable the jaundice will disappear. The unfavorable symptoms are profuse gastro-intestinal hemorrhages, asthenia and the appearance of delirium, convulsions or coma. If the skin and kidneys perform their functions normally the patient may remain

jaundiced for months. The prognosis is not good when jaundice appears during puerperal eclampsia, or following phosphorus poisoning.

Treatment.—The primary disease should be sought out and treated. If possible the patient should take exercise in the open air. The diet should be such as will irritate the liver as little as possible. Of all foods milk is the best. It is a diuretic, and, as such, assists the kidneys in eliminating the bile. It may be taken plain, skimmed, or mixed with equal parts of Vichy or Apollinaris water. Buttermilk is enjoyed by many. Meat broths (well cooked), fruits and soft boiled eggs are of service. A small amount of farinaceous foods may be taken. Alcohol, rich food, sweets and fat should be eliminated from the bill of fare. Water should be taken in abundance. It may be taken plain or mixed with Seltzer, Vichy or Apollinaris. These should be taken warm. A mild lemonade may be employed but it should be taken without sugar.

For the itching and restlessness which characterize some of these cases, a warm alkaline bath (100° to 105°) every night during the early stages is of service. The bath should last from fifteen to twenty minutes at least. Or the skin may be sponged with a carbolic acid solution 1-40.

The bowels should be kept freely relieved and any tendency to congestion of the portal vessels and constipation should be avoided. Strong cholagogues or purgatives should not be given with the idea of forcing the duct open by increasing the amount of bile in the biliary ducts. The intestinal tract should be kept

free from decomposing feces, thus preventing any flatulent distensions. Enemata of water or glycerine may be used to move the bowels. If these are not sufficient, an ounce of olive oil may be employed every hour, or one of the saline waters should be used. When the stools are very offensive, irrigation of the colon with cold water is of service. From two to five grains of ox-gall in a keratin coating may be given shortly after meals in similar conditions.

The faradic current will be found of service in some cases in removing the mucus plug from the ducts. Place one pole over the gall-bladder, the other over an opposite point on the back and move it slightly from time to time.

Chionanthus Virginica.—This is the first remedy to be thought of in the jaundice of childhood and pregnancy, and it is seldom that a second remedy has to be studied. It is indicated in engorgement and acute congestion of the liver with catarrh of the common bile-ducts. There is distress in the right hypochondrium and cramp-like pains in the abdomen. It is useless to depend upon it in cases due to obstruction of the ducts from gall-stones, malignant growths, or foreign bodies.

Chelidonium majus.—This remedy is employed by many in a routine manner in the treatment of jaundice. It is indicated in light complexioned, thin, spare, irritable subjects, who give a history of chronic hepatic, gastric and abdominal complaints. The remedy is useful when there are stitching pains in the hepatic region and especially at the inferior angle of the right scapula. The tongue is large, flabby, and

yellow and shows the imprint of the teeth. There is a bitter taste in the mouth and a craving for sour things. The stools at times are constipated, being then hard like sheep-dung. Again they are diarrheic in character and of a light gray color. Jaundice is present, and there is often a history of repeated attacks of gall-stone colic. The patient feels worse from the change of the weather. The symptoms are relieved by eating.

Mercurius.—This remedy is indicated in catarrhal jaundice when there are indications of duodenal catarrh. The patient is worse at night, worse from the warmth of the bed, from damp, cold, rainy weather and while perspiring; also complains of weariness, prostration and trembling. The tongue is thick and broad and has a moist yellow coating, and shows an imprint of the teeth. The saliva is increased and there is a sweetish or metallic taste in the mouth. The breath and body smell foul.

Podophyllum.—This remedy is of service in persons of a bilious temperament who suffer from torpidity of the liver and gastro-intestinal affections. It acts principally upon the liver, duodenum and rectum. The tongue is broad and moist and there is a foul putrid taste. There is a gagging nausea, vomiting, and belching of hot, sour material. The hepatic region is sensitive and painful. There are large quantities of flatus in the colon which shifts about. Constipation alternates with diarrhea. When the constipation is present the stools are light clay-colored, hard, dry and difficult to expel. The patient feels worse during hot weather, and is relieved by cold weather and from moving about.

Nux vomica.—This is a most important remedy in many of these cases, especially when gastric catarrh is present. The patient is of the irritable, malicious type and suffers from highly seasoned food and a too sedentary life. He complains of headache, dizziness, and severe vertigo usually dependent upon excessive use of coffee or liquor. In the morning there is a sour taste in the mouth. The anterior portion of the tongue is clean, while the posterior part is coated with a deep fur. There is nausea, vomiting, and gagging every morning, with a sensation of pressure in the stomach. The patient is relieved by belching of gas, although there is a general soreness of the stomach and bowels. Constipation is present and there is a frequent but ineffectual urging to stool, attended with a sensation as though the anus were contracted. There is an irresistible desire to sleep early in the evening, with wakefulness at three or four A. M., followed later in the morning by unrefreshing slumber. The hepatic region is sensitive.

Hydrastis Canadensis.—This remedy is indicated in catarrhal condition of the bile-ducts and duodenum as well as of the whole mucous membrane. The natural secretion is increased. At first it is clear, white, transparent and tenacious, but later it becomes yellow, thick, green, and even bloody. The tongue is large, broad and flabby. The coating is yellow and slimy looking. There is anorexia, indigestion, and a general debility that is dependent upon an atonic condition of the stomach. There are sour eructations and inability to digest vegetables and a dull aching pain is complained of in the pit of the

stomach, which causes a sensation of weakness in this region. There is soreness and pain in the hepatic region. The skin is jaundiced. The stools are light-colored and constipation is present.

Cinchona officinalis.—This remedy has a prominent action upon the liver, producing congestion of the organ and jaundice. The patient frequently gives a history of debility, loss of vital fluids, such as blood or semen, or from diarrhea, leucorrhea, overlactation or copious night-sweats. There may be a history of malarial infection or repeated attacks of gall-stones. The tongue is coated white or yellow. There is extreme hunger, especially at night, with longing for acid foods. The digestion is slow, and there are usually diarrhea, flatulence and clay-colored stools, together with the characteristic prostration. Pain in hepatic region is present, and the liver is enlarged and sensitive. The spleen is also frequently enlarged. The symptoms are usually worse every other day.

Myrica cerifera.—This remedy is indicated in catarrhal states of the gastro-intestinal tract when the biliary ducts are involved and jaundice is present. The patient is despondent, irritable and although drowsy cannot sleep. There is headache with pressure in the vertex and forehead, pain and stiffness at the nape of the neck. The tongue is furred. There is a bad taste in the mouth, with nausea and tenacious thick mucous secretion. The gums are sore and tender. Jaundice is complete. There is a dull pain in the hepatic region. The stools are loose, light-colored and there is a constant discharge of flatus.

There is pain under the shoulder blades, in the back, neck, and in all the muscles.

Euonymus atropurpureus.—This remedy should be remembered in cases characterized by delayed digestion, torpid and enlarged liver, constipation and frequently a history of malarial infection.

Carduus marianus.—This remedy has relieved many cases of jaundice when there was enlargement and tenderness of the liver, especially of the left lobe, which, when pressed upon, causes oppressed breathing and cough. The gall-bladder is also enlarged and tender.

Chamomilla.—Will be found of service in cases that follow fits of anger and fright, also in those cases where there have been premonitory symptoms of gastro-duodenal catarrh that has extended to the bile-ducts.

Iris versicolor.—This remedy is indicated in cases of jaundice where there are cutting pains in the right hypochondrium, which are worse from motion. There is a dull heavy headache in the forehead with constant nausea and vomiting of a watery and sour fluid.

Leptandra Virginica.—This remedy is indicated in jaundice when there is pain in the right shoulder and arm. There is pain referred to the posterior part of the liver and spine. The tongue is coated yellow. There may be vomiting. The stools are clay color.

Pulsatilla.—This is of service in cases of menstrual jaundice, when the general characteristics of the remedy are present.

Sepia is another remedy that may be called for in cases of venous congestion, with liver spots and a yellow complexion.

Nitro-muriatic acid is of service when the gastric disturbance is pronounced. The liver is enlarged and the urine shows crystals of calcium oxalate.

ICTERUS NEONATORUM.

Definition.—This is a type of jaundice which occurs in the new born independently of any other lesion, and that terminates favorably.

Etiology.—The theories advanced to explain the etiology of this affection have been many. The one that it is dependent upon absorption of the bile from the intestinal tract is the most plausible. The meconium contains about one per cent. of bile; when food first enters the stomach of the new born both the secretion of the bile and its absorption by the intestinal mucosa is increased. It should be remembered that the ductus venosus Arantii remains patent for several days following birth; and as a result a part at least of the biliary constituents flows directly into the general circulation by way of the vena cava, and there produces the icterus; another factor that should be considered is the slowness with which the bile pigments are dissolved in the urine of the new born. The increased amount of bilirubin in the intestines, and its absorption into the general circulation, is favored by an increased destruction of the red blood corpuscles.

Symptoms.—The icterus appears upon the second or third day following birth. It appears first upon the face and chest. The sclera are involved late if at all. The discoloration persists from a few days to two or three weeks. The functions of the organ and the

health seem to be but little disturbed, although there is some languor and sleepiness. The urine may present nothing abnormal. If concentrated it may be a little darker than normal, and may contain a slight trace of albumin. The stools have a normal color. The pulse is not retarded.

Prognosis.—This is favorable.

Treatment.—The hygiene of the child should be perfect. It is seldom that any remedy is needed. If it is, *Chamomilla* is usually the first remedy and *Bryonia* the second.

ACUTE FEBRILE INFECTIOUS JAUNDICE.

Synonyms.—Weil's Disease; Fardler's Disease.

Definition.—This is an acute febrile disease, characterized by a remittent fever, jaundice, muscular pains, enlargement of the spleen and nephritis.

Etiology.—The special organism causing this disease is not known. It has been attributed by Jaeger to the bacillus proteus fluorescens. It is most frequently met with among men from twenty to thirty years of age and during the summer months. It has been common among those whose surroundings were unsanitary, and has occurred in limited epidemics.

Pathology.—Bacteriological investigations have yielded no positive results. The degenerative changes that are observed in other infectious diseases are observed here. The liver and spleen are hyperemic. The cortical portion of the kidneys is mottled and swollen, while the epithelium of the tubules and glomeruli show cloudy swelling. The tissues of the body are bile-stained and show the effects of a general toxic process.

Symptoms.—These appear suddenly. There is a chill followed by fever. The rise of the temperature is rapid. The patient complains of headache, vertigo, lassitude, and pains in the muscles, which may be excruciating. Stupor develops early and is speedily followed by delirium when a typhoid states ensues. From the third to the fifth day, seldom earlier, jaundice appears and speedily becomes intense. The tongue is coated. The spleen and liver are enlarged, and are sensitive to pressure. The urine usually contains a moderate quantity of albumin, a few hyaline or epithelial casts and a few red blood corpuscles. The stools are clay colored with some variations. The temperature remains about 104° for from four to eight days of the disease, when, with remissions, it reaches the normal in from four to six days. All the symptoms gradually subside. The jaundice persists from ten to fourteen days. In about forty per cent. of the cases a recurrence occurs in from three to eight days following the first drop of the temperature. During this time there is repetition of all of the symptoms.

Diagnosis.—This is based on the sudden onset, the muscular pain, the fever, the jaundice, the enlargement of the liver and the spleen, the remittent character of the symptoms and the occurrence in epidemics.

Differential Diagnosis.—This disease presents many symptoms in common with relapsing fever, but in the latter there are in the blood the spirilli which are not present in this disease.

Cryptogenetic sepsis also has many points of similarity; but the remittent or intermittent character of the fever, with frequent recurrent chills; the occur-

ence of endocarditis, arthritis, suppuration and pains in the bones and the absence of a distinct relapse should distinguish it from Weil's disease. It is not always so easy to distinguish purulent cholangitis from the disease under discussion; but the intermittent character of the fever, the etiology of the cases, especially a history of gall-stone colic and formation of abscess of the liver, are points of assistance at least.

Enteric fever has been mistaken for this disease, but in the beginning the Widal reaction is present, and the whole disease takes a much slower course.

Prognosis.—This is favorable, but convalescence may be protracted.

Treatment.—The patient should be kept in bed. Milk should form a large part of the diet, water should be taken in abundance. The remedies that are most frequently indicated are *Gelsemium*, *Eupatorium perfoliatum* and *Podophyllum*.

BENIGN AND MALIGNANT TUMORS OF THE GALL-BLADDER.

Of the benign form the papilloma, fibroma, cystic adenoma, cysts and fatty tumors are met with.

Of the malignant growths the carcinoma is practically the only one met with. It is usually associated with biliary calculi.

The symptoms are those of carcinoma in other portions of the body, together with the local indications that naturally appear.

The prognosis is unfavorable.

CONGENITAL OBLITERATION OF THE BILE-DUCTS.

This is most frequently the result of a fetal

peritonitis. There is a tendency to it in certain families. Syphilis appears to be a cause in some cases.

The symptoms are those of an obstructive jaundice.
The treatment is symptomatic.

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